FCC PART 15.247

TEST REPORT

For

Fujian Newland Payment Technology Co.,Ltd.

No.1,Rujiang XiRoad,Mawei District Newland, Fuzhou,Fujian,P.R.China

FCC ID:2AM6U-N910

Report Type:	**Product Name:**
Original Report	Intelligent POS Terminal

Report Number:	RXM170815054-00D
Report Date:	2017-10-03
Reviewed By:	Jerry Zhang EMC Manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		Intelligent POS Terminal
EUT Model:		N910
Rated Input Voltage:		DC 7.2V from battery or DC 5V from adapter
Nominal Adapter Information	**Model:**	SW-0983
	Input:	100-240V~, 50/60Hz, 0.5A
	Output:	DC5.0V, 2.0A
External Dimension:		Length (19cm)*Width (8.1cm)*High (5.5cm)
Serial Number:		00000304N7NL00142955
EUT Received Date:		2017.08.15

Note: the device built in a certified RF modular, FCC ID: XMR201706SC20A, granted on 2017-08-14.

Objective

This report is prepared on behalf of ***Fujian Newland Payment Technology Co.,Ltd.*** in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communications Commission's rules.

The tests were performed in order to determine the compliance of the EUT with FCC Rules Part 15-Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: 2AM6U-N910.
FCC Part 15C DSS submissions with FCC ID: 2AM6U-N910.
FCC Part 15C DXX submissions with FCC ID: 2AM6U-N910.
FCC Part 15E NII submissions with FCC ID: 2AM6U-N910.
FCC Part 22H, 24E, 27, 90 PCB submissions with FCC ID: 2AM6U-N910.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical 1G~6GHz: 4.45 dB, 6G~26.5GHz: 5.23 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China

Bay Area Compliance Laboratories Corp. (Dongguan) has been accredited to ISO 17025 by CNAS(Lab code: L5662). And accredited to ISO 17025 by NVLAP(Test Laboratory Accreditation Certificate Number 500069-0), the FCC Designation No. CN5002 under the KDB 974614 D01.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Bay Area Compliance Laboratories Corp. (Dongguan) was registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in Engineering Mode, which was provided by the manufacturer.

For 2.4GHz band, total 11 channels are provided:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

For 802.11b, 802.11g, and 802.11n ht20 modes were test with channel 1,6,11.
For 802.11n ht40 mode was test with channel 3,6,9.

The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates bandwidths, and modulations.

For Bluetooth LE mode, 40 channels are provided for testing:

Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
0	2402	20	2442
1	2404	…	…
…	…	…	…
…	…	…	…
..	…	38	2478
19	2440	39	2480

EUT was tested with channel 0, 19 and 39.

EUT Exercise Software

The "QRCT" was used for testing, which was provided by manufacturer. The maximum power was configured as below table, that provided by the manufacturer:

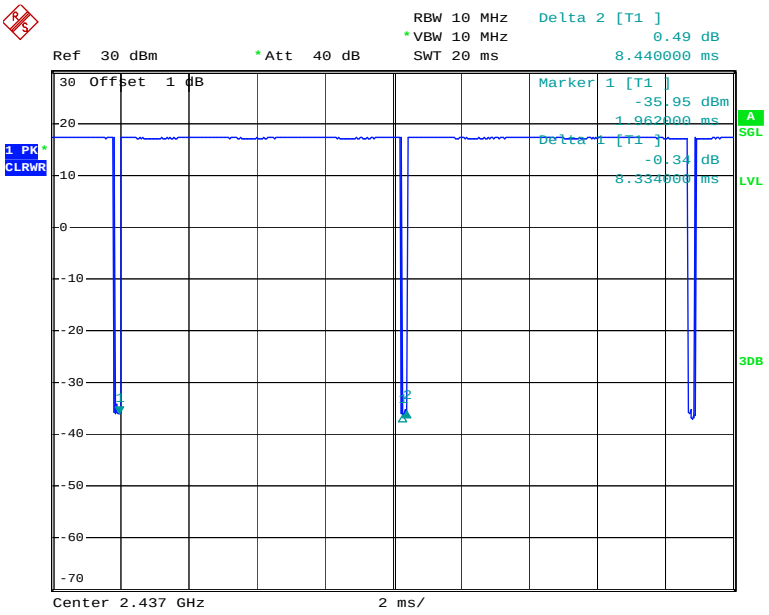
Test Mode	Test Software Version	QRCT		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	1Mbps	1Mbps	1Mbps
	Power Level Setting	20	18	17
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting	17	18	14
802.11n 20	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	18	16	12
802.11n 40	Test Frequency	2422MHz	2437MHz	2452MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	17	17	13

Note: BLE mode configured as maximum power by the system default setting.

The maximum duty cycle as following table:

Test mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)
802.11b	8.334	8.440	98.74%
802.11g	1.398	1.568	89.16%
802.11 n20	1.298	1.468	88.42%
802.11 n40	0.654	0.840	77.86%
BLE	0.420	0.625	67.2%

802.11b



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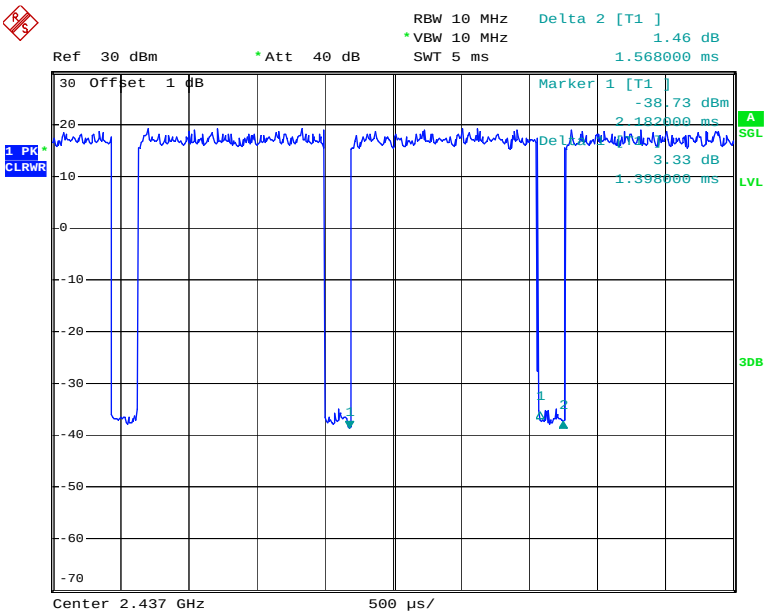
802.11g



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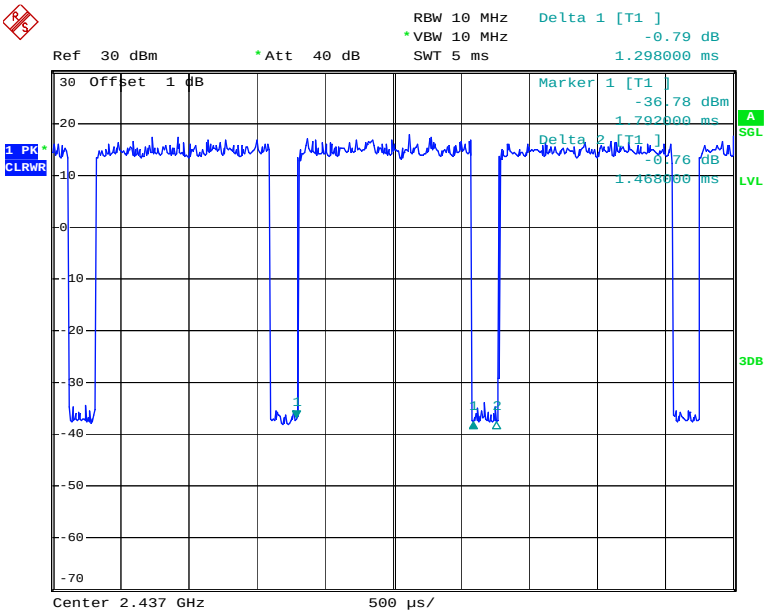
802.11 n20



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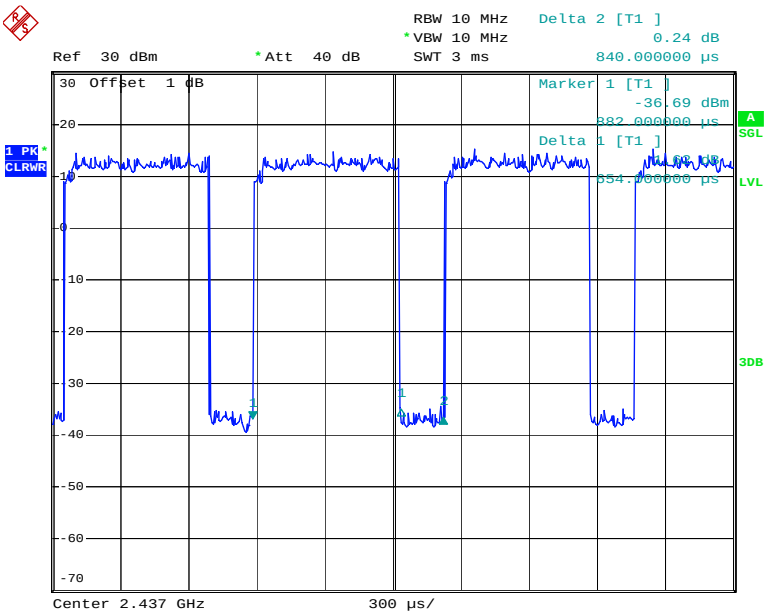
802.11 n40



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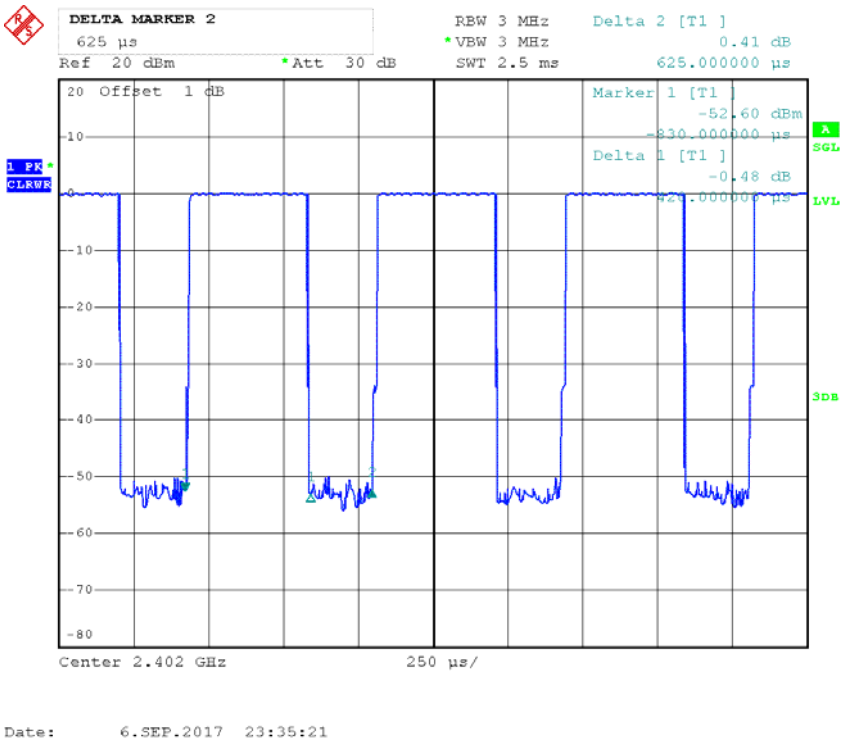
BLE



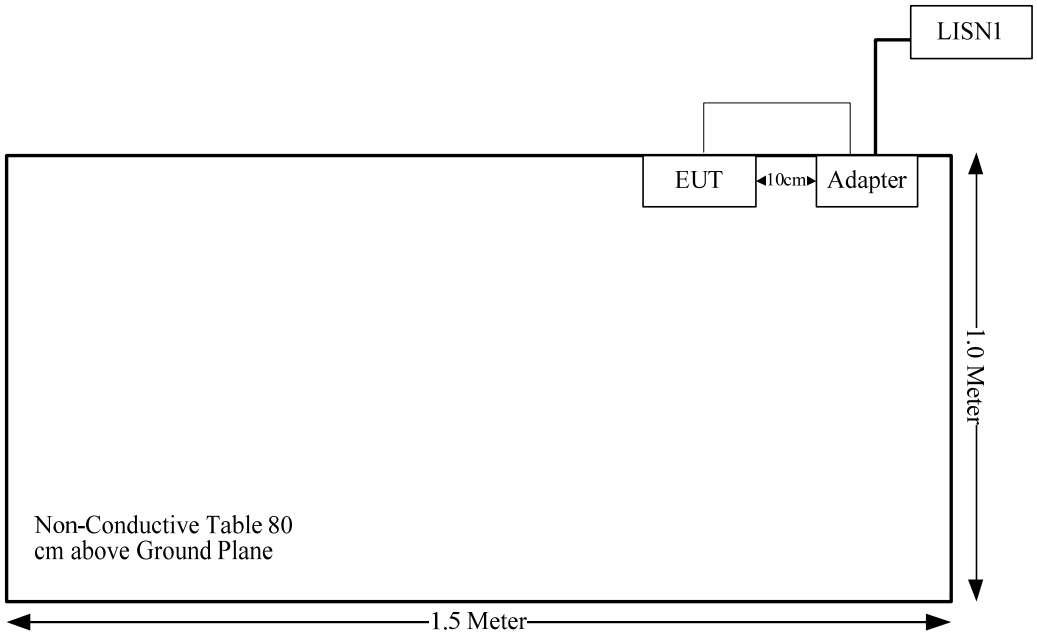
Equipment Modifications

No modification was made to the EUT.

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (cm)	From Port	To
USB Cable	yes	No	0.81	USB Port of adapter	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1093	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Bandwidth	Compliance
§15.247(b)(3)	Maximum Conducted Output Power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

FCC §15.247 (i) & §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

According to§15.247(i) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Result

For Bluetooth LE mode:

The max conducted power including tune-up tolerance is 2.0 dBm (1.58 mW).
[(max. power of channel, mW)/(min. test separation distance, mm)][√f(GHz)]
= 1.58/5*(√2.480) = 0.5< 3.0

For WiFi mode:

Compliance, Please refer to the SAR report: RXM170815054-20

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Connector Construction

The EUT has one internal antenna arrangement for BT and WIFI, and the antenna gain is 2.74 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

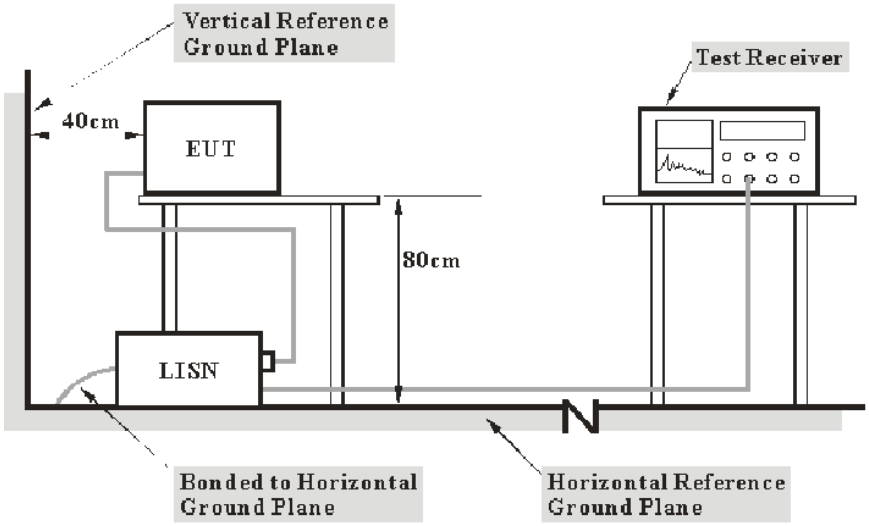
Result: Compliance.

FCC §15.207 (a)– AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207(a)

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207.

The spacing between the peripherals was 10 cm.

The EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$V_C = V_R + A_C + VDF$
$C_f = A_C + VDF$

Herein,
V_C (cord. Reading): corrected voltage amplitude
V_R: reading voltage amplitude
A_c: attenuation caused by cable loss
VDF: voltage division factor of AMN
C_f: Correction Factor

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2016-12-08	2017-12-08
R&S	L.I.S.N	ESH2-Z5	892107/021	2017-09-01	2018-09-01
R&S	Two-line V-network	ENV 216	3560.6550.12	2016-12-08	2017-12-08
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
Unknown	Coaxial Cable	2m	Con-1	2017-09-05	2018-09-05

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

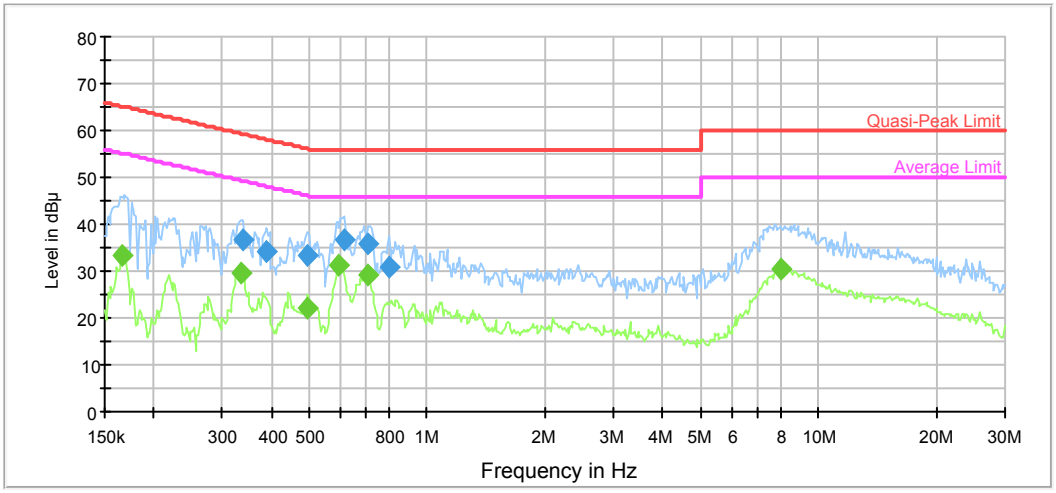
Temperature:	27.1 °C
Relative Humidity:	43 %
ATM Pressure:	100.2 kPa

The testing was performed by Gaochao Gong on 2017-09-05.

Test Mode: Transmitting

WIFI:

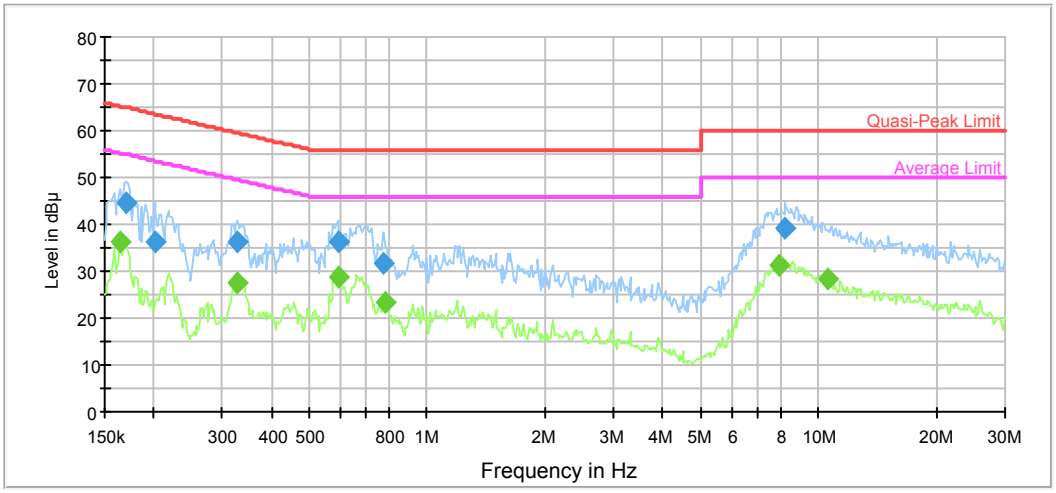
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.338116	36.7	9.000	L1	10.1	22.5	59.2	Compliance
0.390261	34.1	9.000	L1	10.0	24.0	58.1	Compliance
0.495646	33.5	9.000	L1	9.9	22.6	56.1	Compliance
0.614619	36.7	9.000	L1	9.8	19.3	56.0	Compliance
0.709407	35.7	9.000	L1	9.8	20.3	56.0	Compliance
0.799472	30.7	9.000	L1	9.8	25.3	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.166371	33.5	9.000	L1	11.0	21.6	55.1	Compliance
0.335433	29.4	9.000	L1	10.1	19.9	49.3	Compliance
0.495646	21.9	9.000	L1	9.9	24.2	46.1	Compliance
0.595338	31.1	9.000	L1	9.8	14.9	46.0	Compliance
0.709407	29.4	9.000	L1	9.8	16.6	46.0	Compliance
0.762149	32.0	9.000	L1	9.8	14.0	46.0	Compliance

AC120 V, 60 Hz, Neutral:

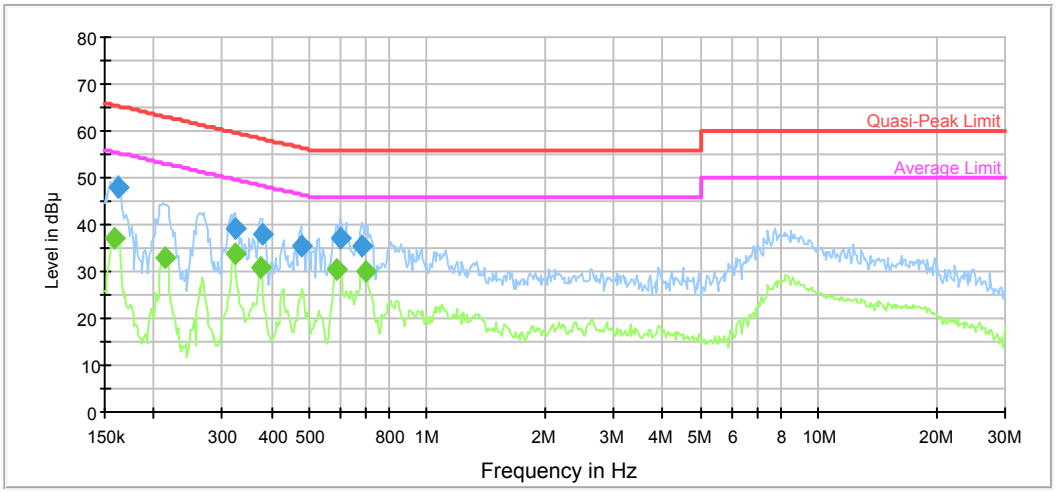


Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.170396	44.7	9.000	N	10.9	20.2	64.9	Compliance
0.201433	36.3	9.000	N	10.6	27.3	63.6	Compliance
0.327509	36.4	9.000	N	10.1	23.1	59.5	Compliance
0.590613	36.3	9.000	N	9.8	19.7	56.0	Compliance
0.774393	31.8	9.000	N	9.8	24.2	56.0	Compliance
8.255421	39.1	9.000	N	9.8	20.9	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.163741	36.2	9.000	N	11.0	19.1	55.3	Compliance
0.327509	27.5	9.000	N	10.1	22.0	49.5	Compliance
0.590613	28.9	9.000	N	9.8	17.1	46.0	Compliance
0.780588	23.5	9.000	N	9.8	22.5	46.0	Compliance
7.932983	31.3	9.000	N	9.8	18.7	50.0	Compliance
10.568557	28.2	9.000	N	9.9	21.8	50.0	Compliance

BLE

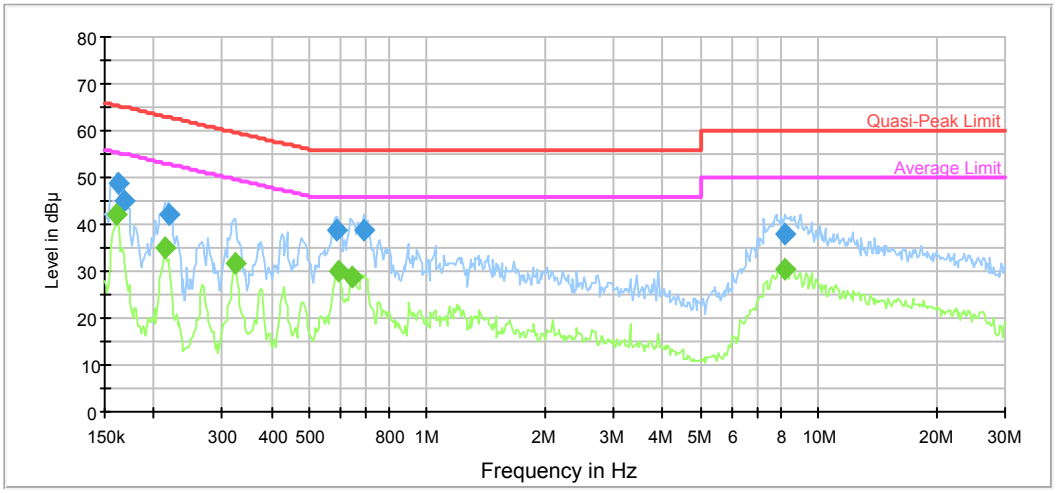
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.162441	47.8	9.000	L1	11.0	17.5	65.3	Compliance
0.322331	39.4	9.000	L1	10.1	20.2	59.6	Compliance
0.378019	37.9	9.000	L1	10.0	20.4	58.3	Compliance
0.476287	35.6	9.000	L1	9.9	20.8	56.4	Compliance
0.600101	37.3	9.000	L1	9.8	18.7	56.0	Compliance
0.681699	35.4	9.000	L1	9.8	20.6	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.158604	37.3	9.000	L1	11.1	18.2	55.5	Compliance
0.212988	32.8	9.000	L1	10.5	20.3	53.1	Compliance
0.322331	33.8	9.000	L1	10.1	15.8	49.6	Compliance
0.375019	31.0	9.000	L1	10.0	17.4	48.4	Compliance
0.585926	30.6	9.000	L1	9.8	15.4	46.0	Compliance
0.698191	30.1	9.000	L1	9.8	15.9	46.0	Compliance

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.162441	48.9	9.000	N	11.0	16.4	65.3	Compliance
0.167702	44.9	9.000	N	10.9	20.2	65.1	Compliance
0.218141	42.2	9.000	N	10.5	20.7	62.9	Compliance
0.585926	38.8	9.000	N	9.8	17.2	56.0	Compliance
0.692650	38.9	9.000	N	9.8	17.1	56.0	Compliance
8.255421	37.7	9.000	N	9.8	22.3	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.161152	42.0	9.000	N	11.0	13.4	55.4	Compliance
0.214692	35.1	9.000	N	10.5	17.9	53.0	Compliance
0.322331	31.7	9.000	N	10.1	17.9	49.6	Compliance
0.595338	29.9	9.000	N	9.8	16.1	46.0	Compliance
0.644717	28.6	9.000	N	9.8	17.4	46.0	Compliance
8.189901	30.4	9.000	N	9.8	19.6	50.0	Compliance

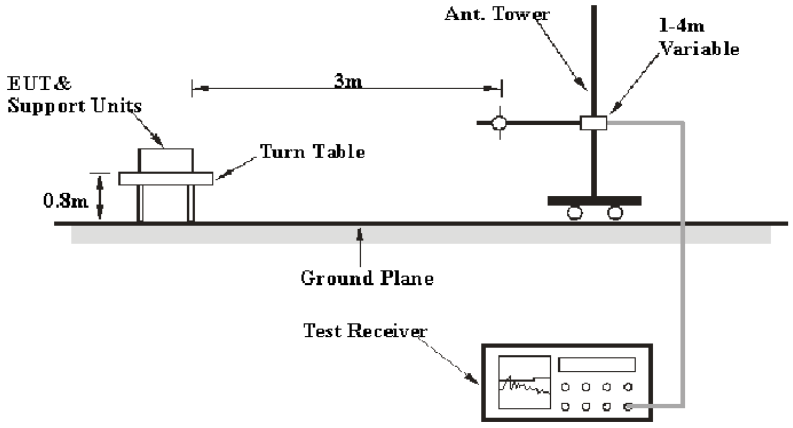
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

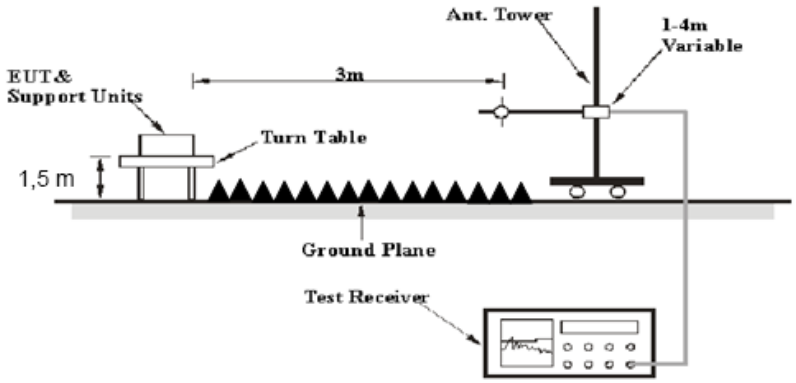
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

30MHz-1000MHz:

Measurement	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz- 25GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Ave.	>98%	1MHz	10 Hz
	<98%	1MHz	1/T

Note: T is minimum transmission duration

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-09-01	2018-09-01
Sunol Sciences	Antenna	JB3	A060611-1	2014-11-06	2017-11-05
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
R&S	Spectrum Analyzer	FSU 26	200256	2016-12-08	2017-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-06-16	2020-06-15
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2017-09-05	2018-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2017-06-27	2018-06-27
Unknown	Coaxial Cable	Chamber A-1	4m	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber B-1	0.75m	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber A-2	10m	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber B-2	8m	2017-09-05	2018-09-05
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26.1°C
Relative Humidity:	52 %
ATM Pressure:	100.2 kPa

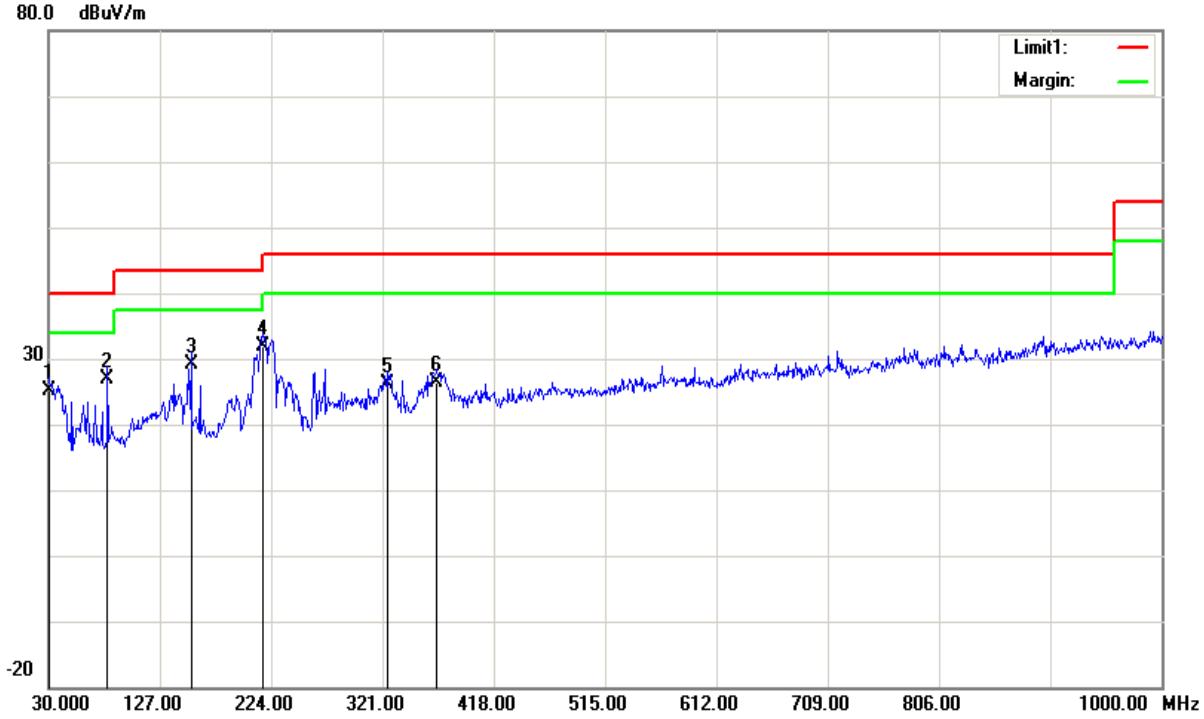
** The testing was performed by Tony Zeng on 2017-09-07.*

Test Result: Compliance, please Refer to the following data

Test Mode: Transmitting

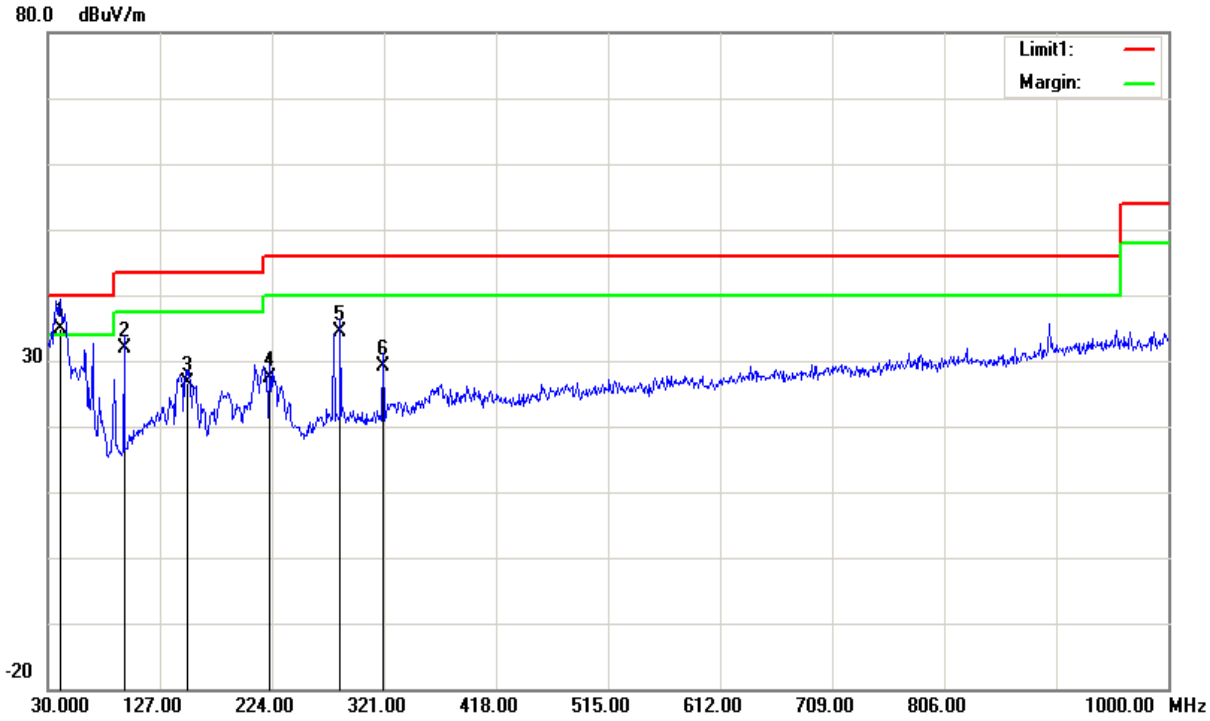
1) 30MHz-1GHz(802.11g mode high channel was the worst)

Horizontal:



Frequency (MHz)	Receiver Reading (dBµV)	Measurement	Correction Factor (dB/m)	Cord. Amp. (dBµV /m)	Limit (dBµV /m)	Margin (dB)
30.0000	24.13	QP	1.07	25.20	40.00	14.80
81.4100	38.05	QP	-11.25	26.80	40.00	13.20
154.1600	35.86	QP	-6.66	29.20	43.50	14.30
217.2100	39.26	QP	-7.36	31.90	46.00	14.10
325.8500	30.14	QP	-4.04	26.10	46.00	19.90
368.5300	29.45	QP	-3.05	26.40	46.00	19.60

Vertical:



Frequency (MHz)	Receiver Reading (dBµV)	Measurement	Correction Factor (dB/m)	Cord. Amp. (dBµV /m)	Limit (dBµV /m)	Margin (dB)
40.6700	41.81	QP	-6.91	34.90	40.00	5.10
95.9600	41.43	QP	-9.63	31.80	43.50	11.70
150.2800	33.32	QP	-6.72	26.60	43.50	16.90
222.0600	34.53	QP	-7.03	27.50	46.00	18.50
283.1700	38.30	QP	-3.90	34.40	46.00	11.60
320.0300	33.33	QP	-4.23	29.10	46.00	16.90

2) 1-25GHz:

802.11b Mode:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Measurement (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	73.57	PK	H	28.12	3.11	0.00	104.80	N/A	N/A
2412	69.66	AV	H	28.12	3.11	0.00	100.89	N/A	N/A
2412	71.69	PK	V	28.12	3.11	0.00	102.92	N/A	N/A
2412	67.59	AV	V	28.12	3.11	0.00	98.82	N/A	N/A
2390	26.54	PK	H	28.08	3.10	0.00	57.72	74.00	16.28
2390	13.36	AV	H	28.08	3.10	0.00	44.54	54.00	9.46
4824	45.35	PK	H	32.95	4.33	35.49	47.14	74.00	26.86
4824	32.52	AV	H	32.95	4.33	35.49	34.31	54.00	19.69
7236	45.58	PK	H	35.81	5.47	35.97	50.89	74.00	23.11
7236	32.65	AV	H	35.81	5.47	35.97	37.96	54.00	16.04
4147	45.51	PK	H	32.37	4.00	35.32	46.56	74.00	27.44
4147	32.87	AV	H	32.37	4.00	35.32	33.92	54.00	20.08
Middle Channel: 2437 MHz									
2437	74.95	PK	H	28.17	3.11	0.00	106.23	N/A	N/A
2437	71.77	AV	H	28.17	3.11	0.00	103.05	N/A	N/A
2437	72.92	PK	V	28.17	3.11	0.00	104.20	N/A	N/A
2437	69.52	AV	V	28.17	3.11	0.00	100.80	N/A	N/A
4874	45.66	PK	H	33.05	4.39	35.53	47.57	74.00	26.43
4874	32.53	AV	H	33.05	4.39	35.53	34.44	54.00	19.56
7311	45.95	PK	H	36.01	5.52	35.97	51.51	74.00	22.49
7311	32.89	AV	H	36.01	5.52	35.97	38.45	54.00	15.55
4651	45.88	PK	H	32.60	4.35	35.36	47.47	74.00	26.53
4651	32.47	AV	H	32.60	4.35	35.36	34.06	54.00	19.94
3652	45.67	PK	H	31.63	3.73	35.14	45.89	74.00	28.11
3652	32.75	AV	H	31.63	3.73	35.14	32.97	54.00	21.03
High Channel: 2462 MHz									
2462	75.29	PK	H	28.22	3.10	0.00	106.61	N/A	N/A
2462	71.54	AV	H	28.22	3.10	0.00	102.86	N/A	N/A
2462	71.75	PK	V	28.22	3.10	0.00	103.07	N/A	N/A
2462	67.85	AV	V	28.22	3.10	0.00	99.17	N/A	N/A
2483.5	27.95	PK	H	28.27	3.10	0.00	59.32	74.00	14.68
2483.5	18.41	AV	H	28.27	3.10	0.00	49.78	54.00	4.22
4924	45.82	PK	H	33.15	4.42	35.57	47.82	74.00	26.18
4924	32.69	AV	H	33.15	4.42	35.57	34.69	54.00	19.31
7386	45.75	PK	H	36.20	5.57	35.98	51.54	74.00	22.46
7386	32.46	AV	H	36.20	5.57	35.98	38.25	54.00	15.75
5482	45.97	PK	H	34.07	4.49	35.84	48.69	74.00	25.31
5482	32.84	AV	H	34.07	4.49	35.84	35.56	54.00	18.44

802.11g Mode:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Measurement (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	77.12	PK	H	28.12	3.11	0.00	108.35	N/A	N/A
2412	67.63	AV	H	28.12	3.11	0.00	98.86	N/A	N/A
2412	74.29	PK	V	28.12	3.11	0.00	105.52	N/A	N/A
2412	65.22	AV	V	28.12	3.11	0.00	96.45	N/A	N/A
2390	38.25	PK	H	28.08	3.10	0.00	69.43	74.00	4.57
2390	20.95	AV	H	28.08	3.10	0.00	52.13	54.00	1.87
4824	45.23	PK	H	32.95	4.33	35.49	47.02	74.00	26.98
4824	32.26	AV	H	32.95	4.33	35.49	34.05	54.00	19.95
7236	45.33	PK	H	35.81	5.47	35.97	50.64	74.00	23.36
7236	32.61	AV	H	35.81	5.47	35.97	37.92	54.00	16.08
4262	45.57	PK	H	32.35	4.00	35.30	46.62	74.00	27.38
4262	32.27	AV	H	32.35	4.00	35.30	33.32	54.00	20.68
Middle Channel: 2437 MHz									
2437	76.14	PK	H	28.17	3.11	0.00	107.42	N/A	N/A
2437	66.35	AV	H	28.17	3.11	0.00	97.63	N/A	N/A
2437	74.62	PK	V	28.17	3.11	0.00	105.90	N/A	N/A
2437	64.34	AV	V	28.17	3.11	0.00	95.62	N/A	N/A
4874	45.59	PK	H	33.05	4.39	35.53	47.50	74.00	26.50
4874	32.68	AV	H	33.05	4.39	35.53	34.59	54.00	19.41
7311	45.66	PK	H	36.01	5.52	35.97	51.22	74.00	22.78
7311	32.29	AV	H	36.01	5.52	35.97	37.85	54.00	16.15
4754	45.61	PK	H	32.81	4.27	35.44	47.25	74.00	26.75
4754	32.21	AV	H	32.81	4.27	35.44	33.85	54.00	20.15
5148	45.45	PK	H	33.54	4.66	35.70	47.95	74.00	26.05
5148	32.67	AV	H	33.54	4.66	35.70	35.17	54.00	18.83
High Channel: 2462 MHz									
2462	74.35	PK	H	28.22	3.10	0.00	105.67	N/A	N/A
2462	65.38	AV	H	28.22	3.10	0.00	96.70	N/A	N/A
2462	69.86	PK	V	28.22	3.10	0.00	101.18	N/A	N/A
2462	60.12	AV	V	28.22	3.10	0.00	91.44	N/A	N/A
2483.5	36.02	PK	H	28.27	3.10	0.00	67.39	74.00	6.61
2483.5	21.35	AV	H	28.27	3.10	0.00	52.72	54.00	1.28
4924	45.59	PK	H	33.15	4.42	35.57	47.59	74.00	26.41
4924	32.67	AV	H	33.15	4.42	35.57	34.67	54.00	19.33
7386	45.55	PK	H	36.20	5.57	35.98	51.34	74.00	22.66
7386	32.64	AV	H	36.20	5.57	35.98	38.43	54.00	15.57
3652	45.74	PK	H	31.63	3.73	35.14	45.96	74.00	28.04
3652	32.94	AV	H	31.63	3.73	35.14	33.16	54.00	20.84

802.11n20 Mode:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Measurement (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	75.31	PK	H	28.12	3.11	0.00	106.54	N/A	N/A
2412	65.71	AV	H	28.12	3.11	0.00	96.94	N/A	N/A
2412	71.77	PK	V	28.12	3.11	0.00	103.00	N/A	N/A
2412	61.24	AV	V	28.12	3.11	0.00	92.47	N/A	N/A
2390	31.09	PK	H	28.08	3.10	0.00	62.27	74.00	11.73
2390	18.71	AV	H	28.08	3.10	0.00	49.89	54.00	4.11
4824	45.33	PK	H	32.95	4.33	35.49	47.12	74.00	26.88
4824	32.26	AV	H	32.95	4.33	35.49	34.05	54.00	19.95
7236	45.59	PK	H	35.81	5.47	35.97	50.90	74.00	23.10
7236	32.51	AV	H	35.81	5.47	35.97	37.82	54.00	16.18
3625	45.56	PK	H	31.58	3.73	35.12	45.75	74.00	28.25
3625	32.62	AV	H	31.58	3.73	35.12	32.81	54.00	21.19
Middle Channel: 2437 MHz									
2437	74.71	PK	H	28.17	3.11	0.00	105.99	N/A	N/A
2437	65.24	AV	H	28.17	3.11	0.00	96.52	N/A	N/A
2437	72.28	PK	V	28.17	3.11	0.00	103.56	N/A	N/A
2437	62.59	AV	V	28.17	3.11	0.00	93.87	N/A	N/A
4874	45.36	PK	H	33.05	4.39	35.53	47.27	74.00	26.73
4874	32.28	AV	H	33.05	4.39	35.53	34.19	54.00	19.81
7311	45.57	PK	H	36.01	5.52	35.97	51.13	74.00	22.87
7311	32.26	AV	H	36.01	5.52	35.97	37.82	54.00	16.18
4262	45.18	PK	H	32.35	4.00	35.30	46.23	74.00	27.77
4262	32.96	AV	H	32.35	4.00	35.30	34.01	54.00	19.99
5124	45.21	PK	H	33.50	4.58	35.68	47.61	74.00	26.39
5124	32.61	AV	H	33.50	4.58	35.68	35.01	54.00	18.99
High Channel: 2462 MHz									
2462	70.44	PK	H	28.22	3.10	0.00	101.76	N/A	N/A
2462	61.41	AV	H	28.22	3.10	0.00	92.73	N/A	N/A
2462	68.28	PK	V	28.22	3.10	0.00	99.60	N/A	N/A
2462	58.24	AV	V	28.22	3.10	0.00	89.56	N/A	N/A
2483.5	32.73	PK	H	28.27	3.10	0.00	64.10	74.00	9.90
2483.5	20.19	AV	H	28.27	3.10	0.00	51.56	54.00	2.44
4924	45.31	PK	H	33.15	4.42	35.57	47.31	74.00	26.69
4924	32.61	AV	H	33.15	4.42	35.57	34.61	54.00	19.39
7386	45.85	PK	H	36.20	5.57	35.98	51.64	74.00	22.36
7386	32.82	AV	H	36.20	5.57	35.98	38.61	54.00	15.39
3471	45.41	PK	H	31.23	3.64	35.06	45.22	74.00	28.78
3471	32.17	AV	H	31.23	3.64	35.06	31.98	54.00	22.02

802.11n40 Mode:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Measurement (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2422 MHz									
2422	73.43	PK	H	28.14	3.11	0.00	104.68	N/A	N/A
2422	63.61	AV	H	28.14	3.11	0.00	94.86	N/A	N/A
2422	71.28	PK	V	28.14	3.11	0.00	102.53	N/A	N/A
2422	61.18	AV	V	28.14	3.11	0.00	92.43	N/A	N/A
2390	34.72	PK	H	28.08	3.10	0.00	65.90	74.00	8.10
2390	21.51	AV	H	28.08	3.10	0.00	52.69	54.00	1.31
4844	45.52	PK	H	32.99	4.35	35.51	47.35	74.00	26.65
4844	32.25	AV	H	32.99	4.35	35.51	34.08	54.00	19.92
7266	45.59	PK	H	35.89	5.49	35.97	51.00	74.00	23.00
7266	32.62	AV	H	35.89	5.49	35.97	38.03	54.00	15.97
4174	45.26	PK	H	32.37	4.00	35.32	46.31	74.00	27.69
4174	32.42	AV	H	32.37	4.00	35.32	33.47	54.00	20.53
Middle Channel: 2437 MHz									
2437	72.96	PK	H	28.17	3.11	0.00	104.24	N/A	N/A
2437	62.41	AV	H	28.17	3.11	0.00	93.69	N/A	N/A
2437	71.42	PK	V	28.17	3.11	0.00	102.70	N/A	N/A
2437	61.15	AV	V	28.17	3.11	0.00	92.43	N/A	N/A
4874	45.52	PK	H	33.05	4.39	35.53	47.43	74.00	26.57
4874	32.42	AV	H	33.05	4.39	35.53	34.33	54.00	19.67
7311	45.57	PK	H	36.01	5.52	35.97	51.13	74.00	22.87
7311	32.54	AV	H	36.01	5.52	35.97	38.10	54.00	15.90
4521	45.36	PK	H	32.34	4.15	35.26	46.59	74.00	27.41
4521	33.21	AV	H	32.34	4.15	35.26	34.44	54.00	19.56
3695	45.26	PK	H	31.73	3.73	35.16	45.56	74.00	28.44
3695	32.58	AV	H	31.73	3.73	35.16	32.88	54.00	21.12
High Channel: 2452 MHz									
2452	69.22	PK	H	28.20	3.10	0.00	100.52	N/A	N/A
2452	60.21	AV	H	28.20	3.10	0.00	91.51	N/A	N/A
2452	66.35	PK	V	28.20	3.10	0.00	97.65	N/A	N/A
2452	57.24	AV	V	28.20	3.10	0.00	88.54	N/A	N/A
2483.5	31.51	PK	H	28.27	3.10	0.00	62.88	74.00	11.12
2483.5	19.91	AV	H	28.27	3.10	0.00	51.28	54.00	2.72
4904	45.32	PK	H	33.11	4.42	35.56	47.29	74.00	26.71
4904	32.26	AV	H	33.11	4.42	35.56	34.23	54.00	19.77
7356	45.58	PK	H	36.13	5.55	35.98	51.28	74.00	22.72
7356	33.06	AV	H	36.13	5.55	35.98	38.76	54.00	15.24
4582	50.21	PK	H	32.46	4.40	35.30	51.77	74.00	22.23
4582	40.17	AV	H	32.46	4.40	35.30	41.73	54.00	12.27

BLE Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Measurement	Polar (H/V)	Factor (dB)					
Low Channel: 2402 MHz									
2402	67.34	PK	H	28.10	3.11	0.00	98.55	N/A	N/A
2402	58.25	AV	H	28.10	3.11	0.00	89.46	N/A	N/A
2402	64.63	PK	V	28.10	3.11	0.00	95.84	N/A	N/A
2402	53.45	AV	V	28.10	3.11	0.00	84.66	N/A	N/A
2390	24.61	PK	H	28.08	3.10	0.00	55.79	74.00	18.21
2390	13.41	AV	H	28.08	3.10	0.00	44.59	54.00	9.41
4804	45.77	PK	H	32.91	4.30	35.48	47.50	74.00	26.50
4804	32.26	AV	H	32.91	4.30	35.48	33.99	54.00	20.01
7206	45.58	PK	H	35.74	5.45	35.97	50.80	74.00	23.20
7206	32.61	AV	H	35.74	5.45	35.97	37.83	54.00	16.17
3647	45.59	PK	H	31.62	3.73	35.13	45.81	74.00	28.19
3647	32.64	AV	H	31.62	3.73	35.13	32.86	54.00	21.14
Middle Channel: 2440 MHz									
2440	68.13	PK	H	28.18	3.11	0.00	99.42	N/A	N/A
2440	59.24	AV	H	28.18	3.11	0.00	90.53	N/A	N/A
2440	66.89	PK	V	28.18	3.11	0.00	98.18	N/A	N/A
2440	55.52	AV	V	28.18	3.11	0.00	86.81	N/A	N/A
4880	45.58	PK	H	33.06	4.40	35.54	47.50	74.00	26.50
4880	32.47	AV	H	33.06	4.40	35.54	34.39	54.00	19.61
7320	45.62	PK	H	36.04	5.53	35.98	51.21	74.00	22.79
7320	32.41	AV	H	36.04	5.53	35.98	38.00	54.00	16.00
5212	45.57	PK	H	33.64	4.81	35.72	48.30	74.00	25.70
5212	32.61	AV	H	33.64	4.81	35.72	35.34	54.00	18.66
4326	45.59	PK	H	32.33	4.03	35.28	46.67	74.00	27.33
4326	32.44	AV	H	32.33	4.03	35.28	33.52	54.00	20.48
High Channel: 2480 MHz									
2480	67.19	PK	H	28.26	3.10	0.00	98.55	N/A	N/A
2480	58.21	AV	H	28.26	3.10	0.00	89.57	N/A	N/A
2480	65.85	PK	V	28.26	3.10	0.00	97.21	N/A	N/A
2480	54.35	AV	V	28.26	3.10	0.00	85.71	N/A	N/A
2483.5	24.62	PK	H	28.27	3.10	0.00	55.99	74.00	18.01
2483.5	13.47	AV	H	28.27	3.10	0.00	44.84	54.00	9.16
4960	45.57	PK	H	33.22	4.42	35.60	47.61	74.00	26.39
4960	32.26	AV	H	33.22	4.42	35.60	34.30	54.00	19.70
7440	45.62	PK	H	36.34	5.60	35.99	51.57	74.00	22.43
7440	32.45	AV	H	36.34	5.60	35.99	38.40	54.00	15.60
4534	45.58	PK	H	32.37	4.20	35.27	46.88	74.00	27.12
4534	32.14	AV	H	32.37	4.20	35.27	33.44	54.00	20.56

FCC §15.247(a) (2)–6 dB EMISSION BANDWIDTH

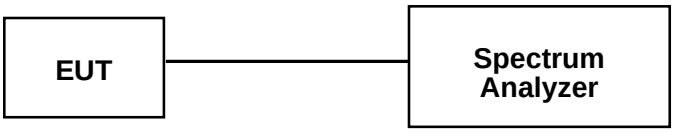
Applicable Standard

According to FCC §15.247(a) (2)

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3×RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2016-12-08	2017-12-08
Unknown	RF Cable	Unknown	C-4	Each Time	/

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	27.3-29.7 °C
Relative Humidity:	47-60 %
ATM Pressure:	100.2-100.4 kPa

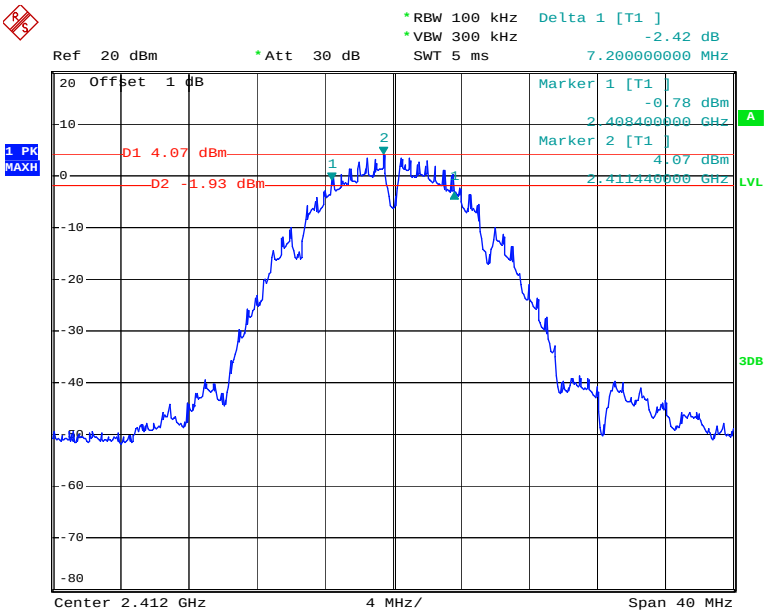
The testing was performed by David Huang from 2017-09-05 to 2017-09-12.

Test Mode: Transmitting

Test Result: Compliant. Please refer to the following table and plots.

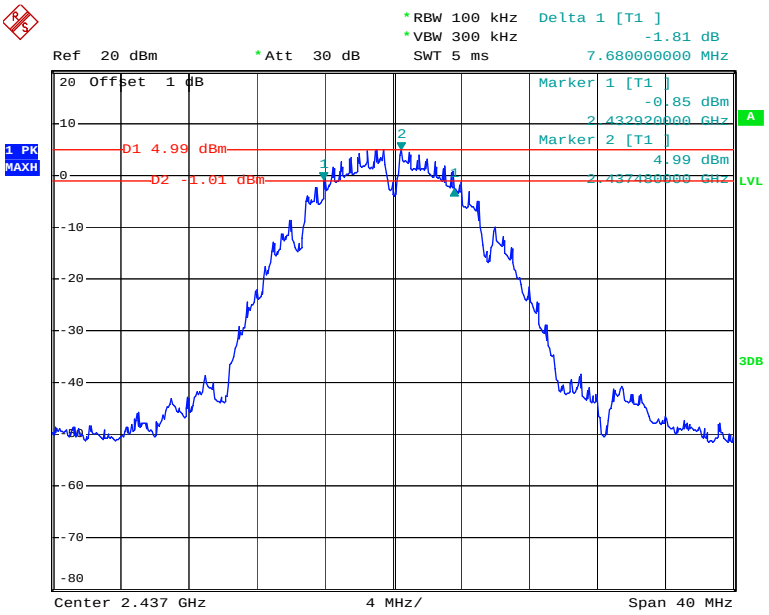
Test mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
802.11b	Low	2412	7.2	≥0.5
	Middle	2437	7.68	≥0.5
	High	2462	7.6	≥0.5
802.11g	Low	2412	16.48	≥0.5
	Middle	2437	16.4	≥0.5
	High	2462	16.48	≥0.5
802.11n20	Low	2412	17.76	≥0.5
	Middle	2437	17.36	≥0.5
	High	2462	17.68	≥0.5
802.11n40	Low	2422	35.52	≥0.5
	Middle	2437	35.2	≥0.5
	High	2452	35.52	≥0.5
BLE	Low	2402	0.68	≥0.5
	Middle	2440	0.67	≥0.5
	High	2480	0.68	≥0.5

802.11b Low Channel



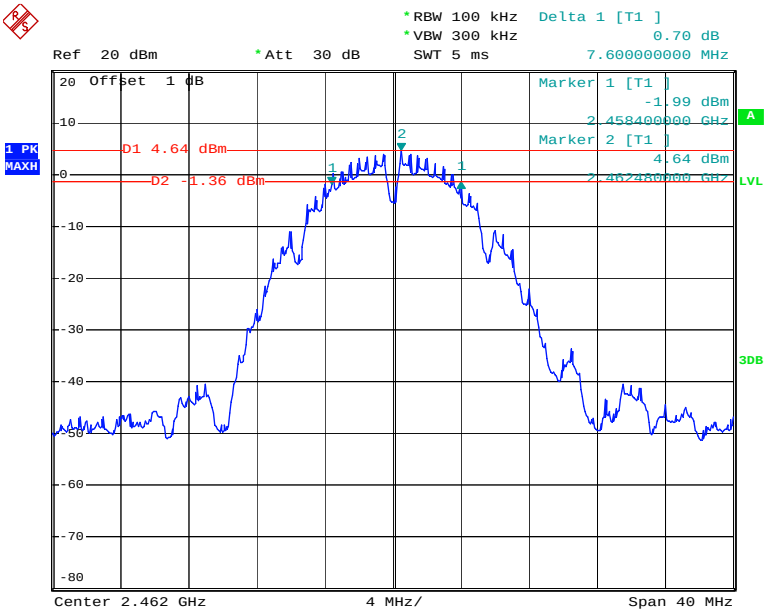
Date: 5.SEP.2017 15:20:41

802.11b Middle Channel



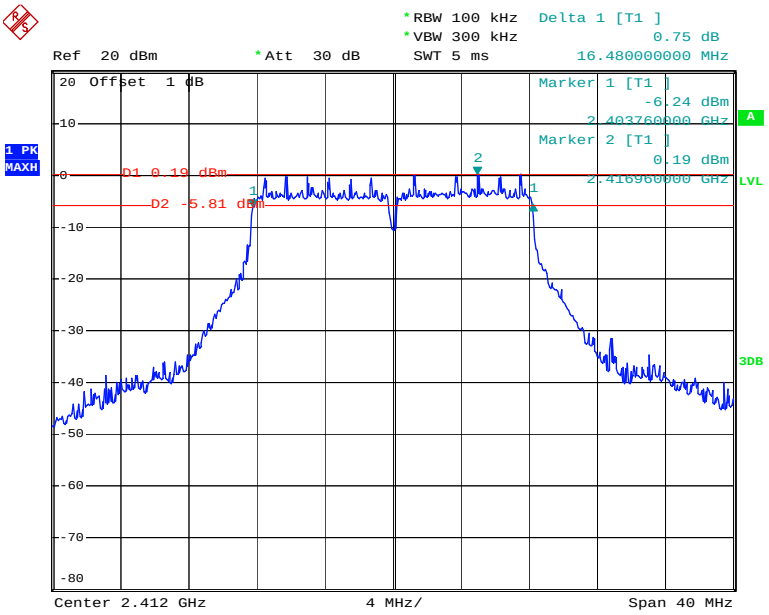
Date: 5.SEP.2017 15:23:07

802.11b High Channel



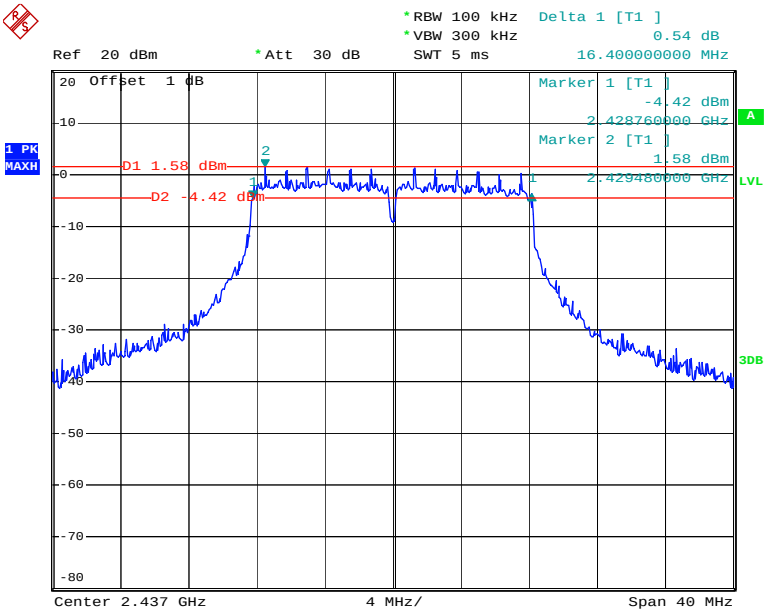
Date: 5.SEP.2017 15:25:09

802.11g Low Channel



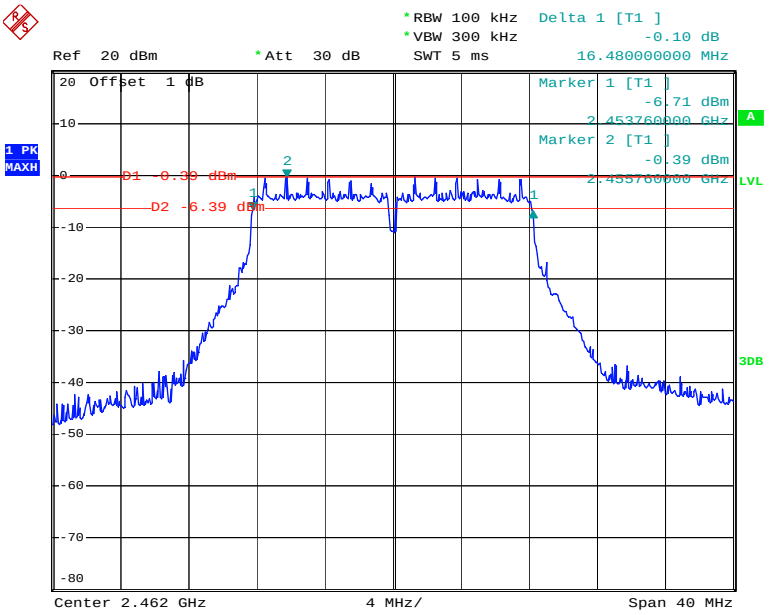
Date: 12.SEP.2017 00:18:25

802.11g Middle Channel



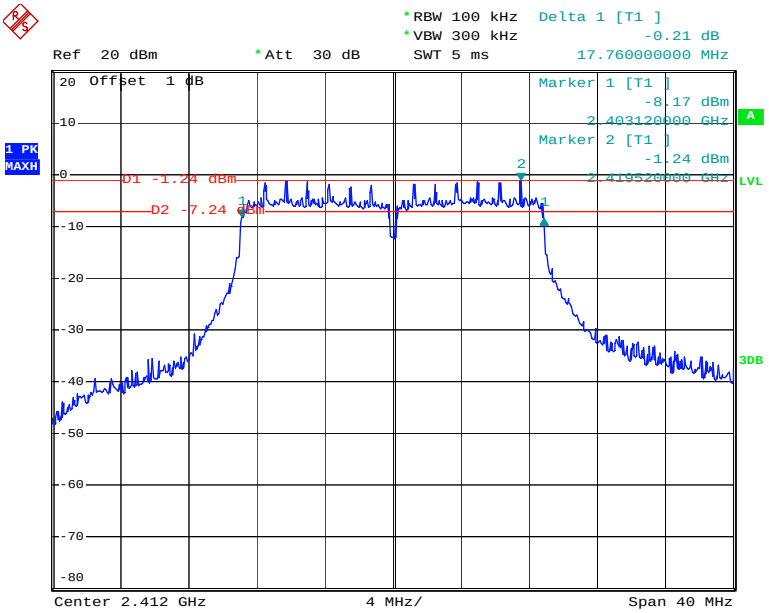
Date: 5.SEP.2017 15:28:55

802.11g High Channel



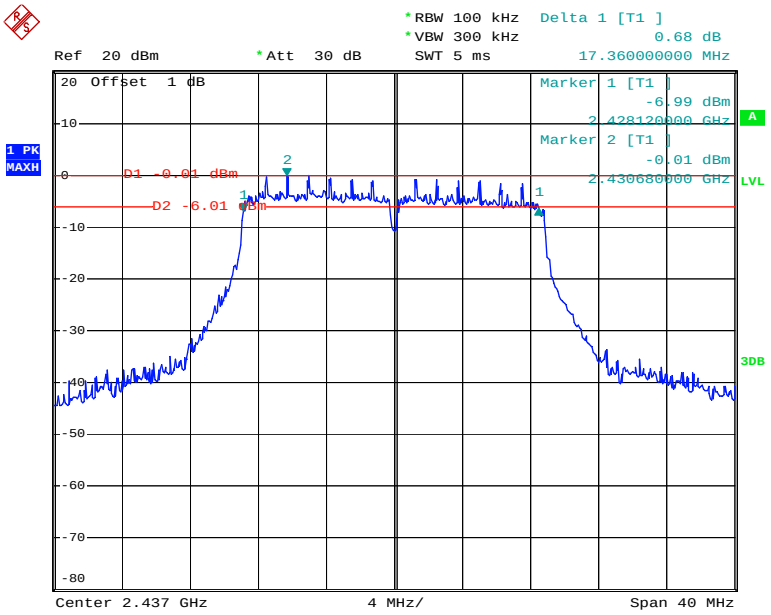
Date: 12.SEP.2017 00:25:56

802.11n ht20 Low Channel



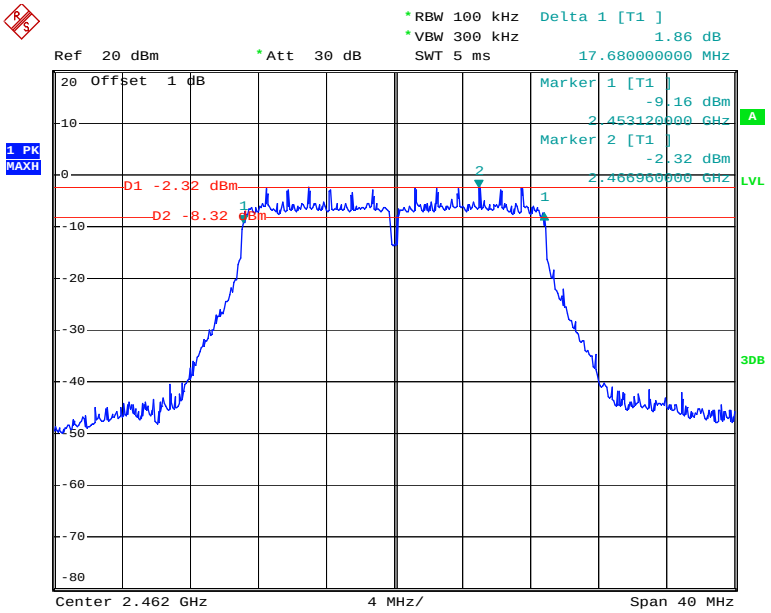
Date: 5.SEP.2017 15:33:22

802.11n ht20 Middle Channel



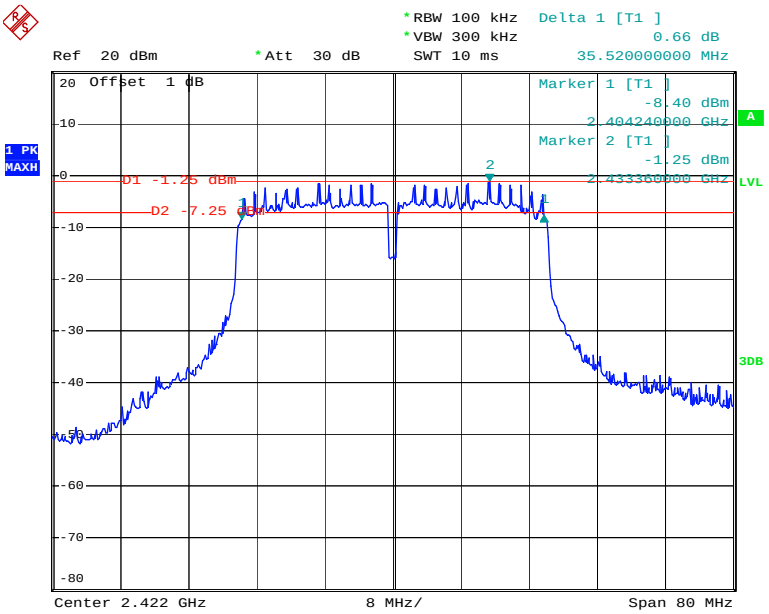
Date: 5.SEP.2017 15:35:49

802.11n ht20 High Channel



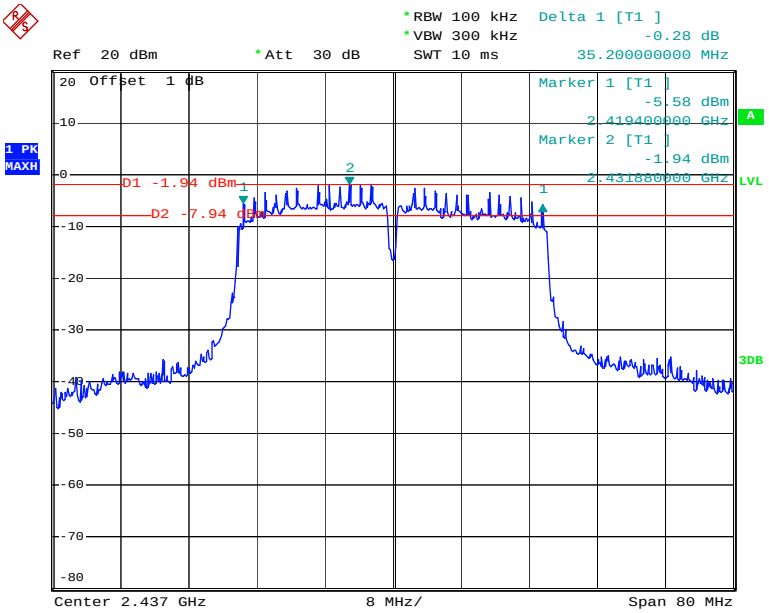
Date: 12.SEP.2017 00:31:53

802.11n ht40 Low Channel



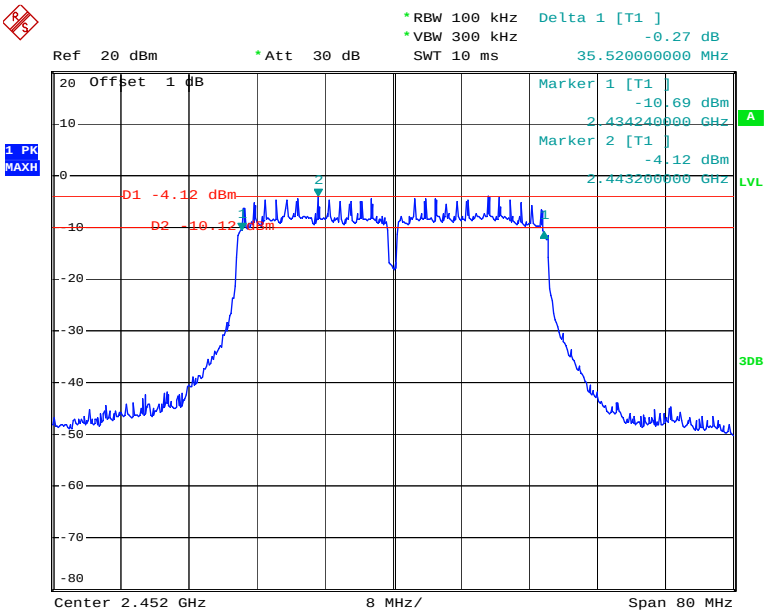
Date: 12.SEP.2017 00:40:42

802.11n ht40 Middle Channel



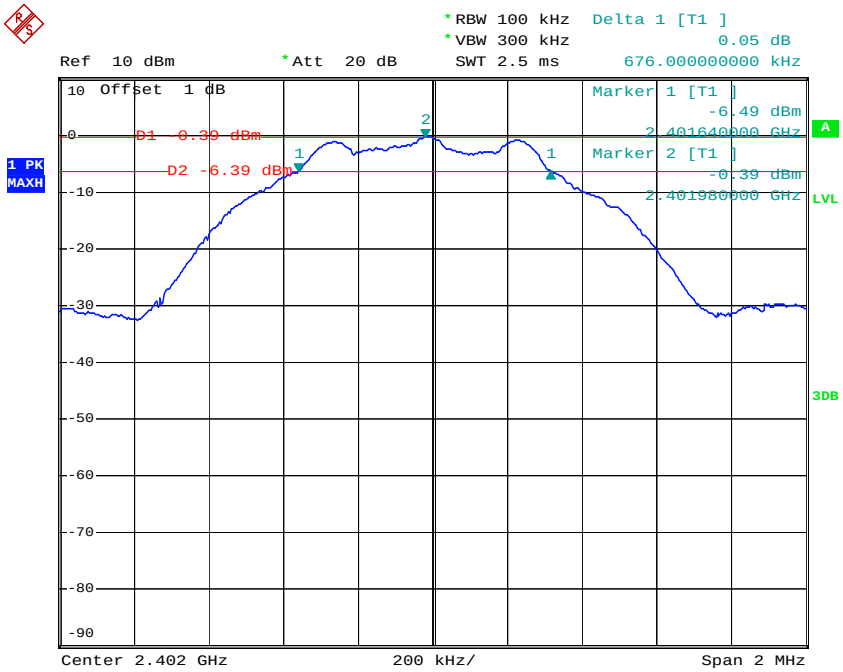
Date: 5.SEP.2017 15:42:24

802.11n ht40 High Channel



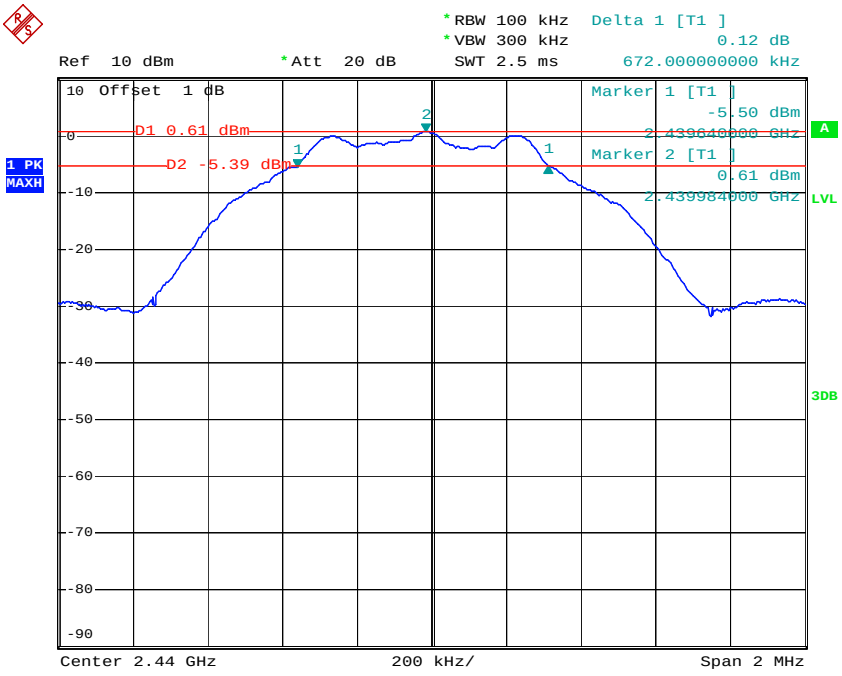
Date: 12.SEP.2017 00:37:45

BLE Low Channel



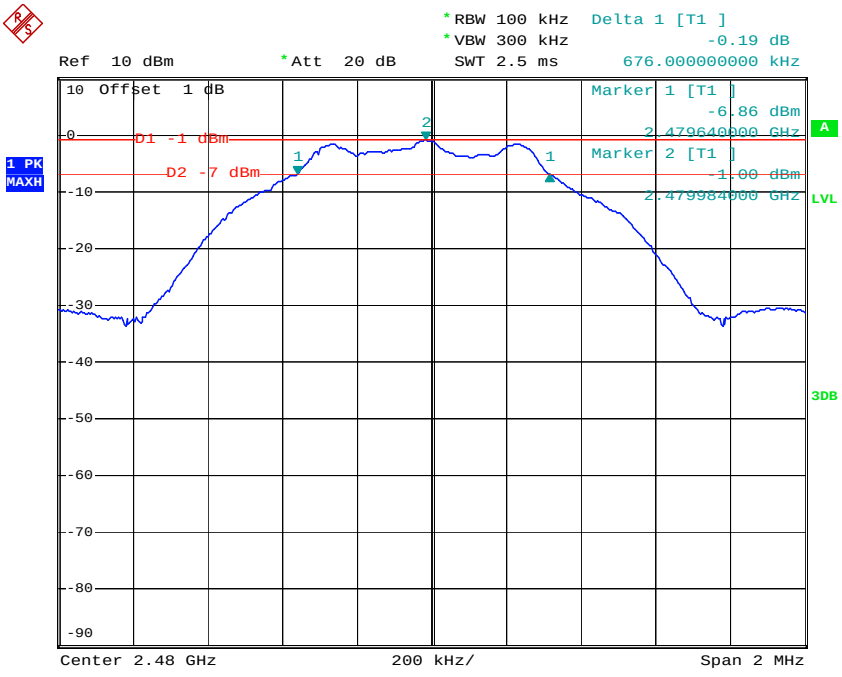
Date: 6.SEP.2017 23:39:37

BLE Middle Channel



Date: 6.SEP.2017 23:41:05

BLE High Channel



Date: 6.SEP.2017 23:42:11

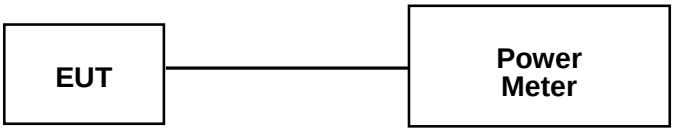
FCC §15.247(b) (3) - MAXIMUM PEAK CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
3. Add a correction factor to the display.
4. Set the power Meter to test Peak output power, record the result as peak power.
5. Set the power meter to test average output power, record the result as average power.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54210016	2016-11-03	2017-11-03
Agilent	Wideband Power Sensor	N1921A	MY54170013	2016-11-03	2017-11-03
Agilent	P-Series Power Meter	N1912A	MY5000448	2016-11-03	2017-11-03
Unknown	RF Cable	Unknown	C-4	Each Time	/

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	27.3-29.7 °C
Relative Humidity:	47-60 %
ATM Pressure:	100.2-100.4 kPa

The testing was performed by David Huang from 2017-09-05 to 2017-09-12.

Test Mode: Transmitting

Test Result: Compliant. Please refer to the following table.

Test mode	Channel	Frequency (MHz)	Max Peak Conducted Output Power (dBm)	Max Conducted Average Output Power (dBm)	Limit (dBm)
802.11b	Low	2412	15.05	14.82	30
	Middle	2437	16.46	15.23	30
	High	2462	15.54	14.83	30
802.11g	Low	2412	19.95	13.3	30
	Middle	2437	21.43	15.12	30
	High	2462	19.7	13.18	30
802.11n20	Low	2412	18.67	13.07	30
	Middle	2437	19.6	13.34	30
	High	2462	17.76	11.26	30
802.11n40	Low	2422	21.18	13.26	30
	Middle	2437	20.18	13.91	30
	High	2452	18.46	10.27	30

Test mode	Channel	Frequency (MHz)	Max Peak Conducted Output Power (dBm)	Limit (dBm)
BLE	Low	2402	0.17	30
	Middle	2440	1.09	30
	High	2480	-0.47	30

FCC §15.247(d)– 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Applicable Standard

According to FCC§15.247(d):In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2016-12-08	2017-12-08
Unknown	RF Cable	Unknown	C-4	Each Time	/

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

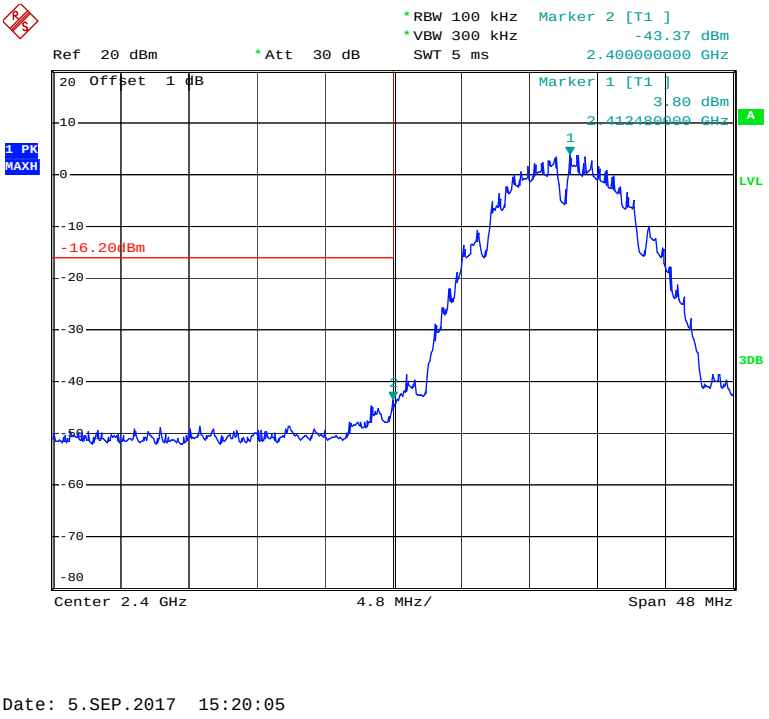
Temperature:	27.3-29.7 °C
Relative Humidity:	47-60 %
ATM Pressure:	100.2-100.4 kPa

The testing was performed by David Huang from 2017-09-05 to 2017-09-12.

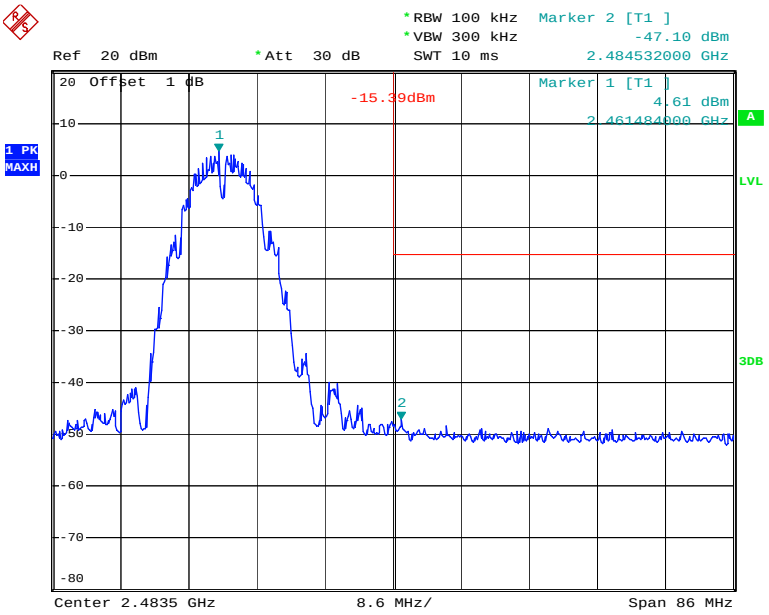
Test mode: Transmitting

Test Result: Compliant. Please refer to following plots.

802.11b: Band Edge, Left Side

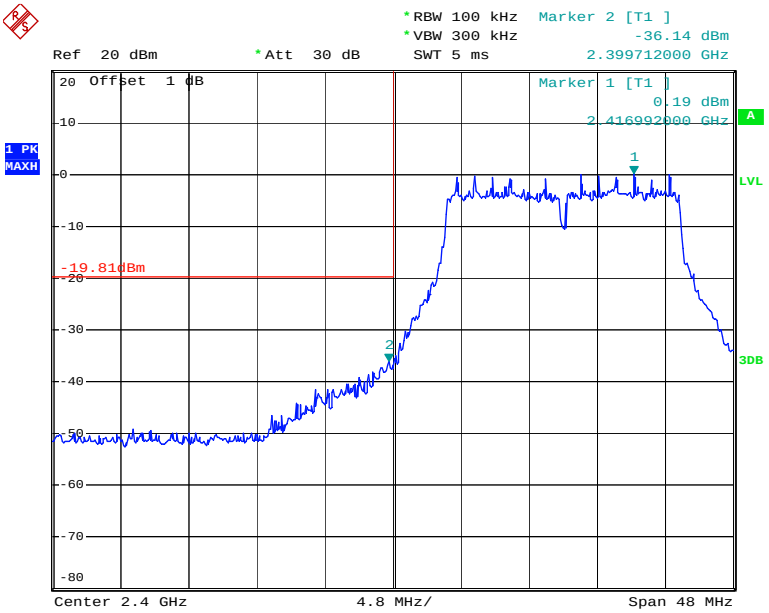


802.11b: Band Edge, Right Side



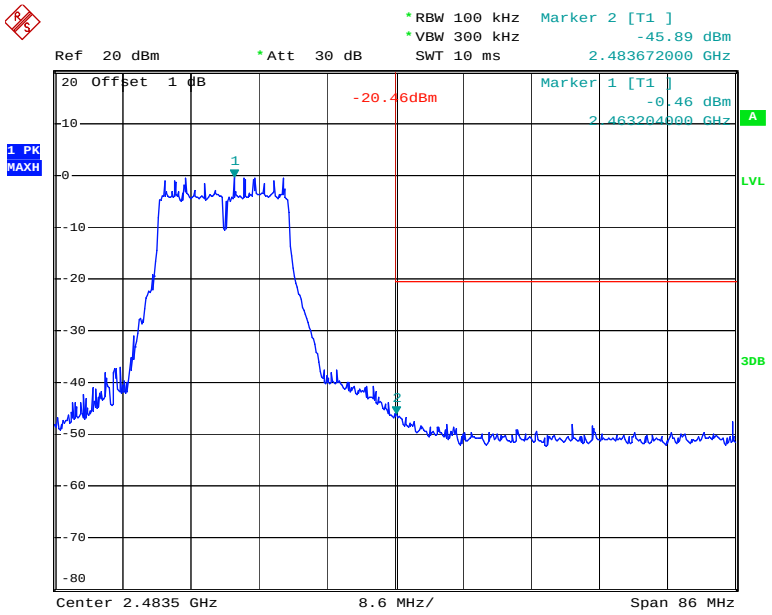
Date: 5.SEP.2017 15:26:13

802.11g: Band Edge, Left Side



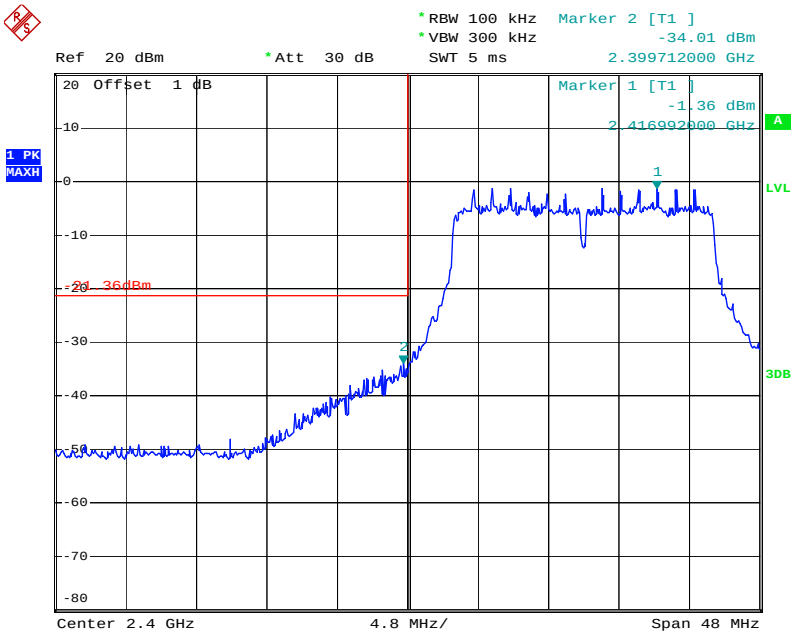
Date: 12.SEP.2017 00:19:25

802.11g: Band Edge, Right Side



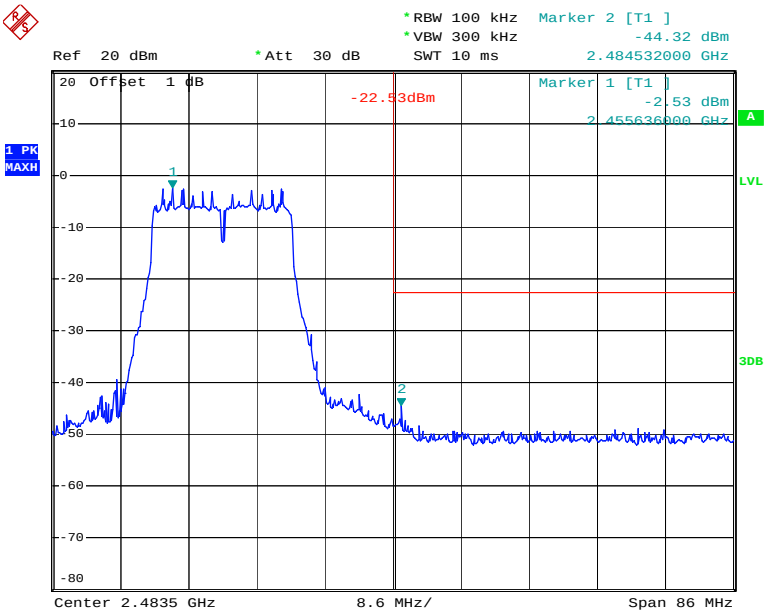
Date: 12.SEP.2017 00:27:10

802.11n ht20 Band Edge, Left Side



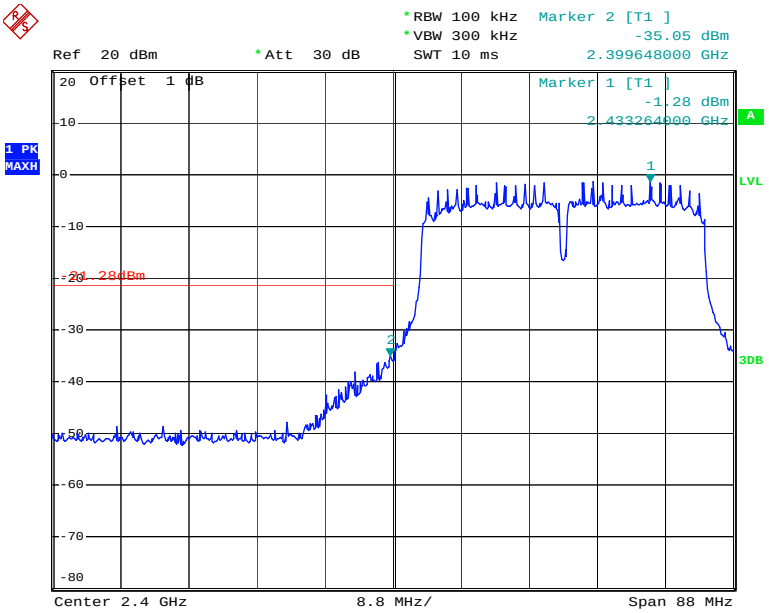
Date: 5.SEP.2017 15:34:36

802.11n ht20 Band Edge, Right Side



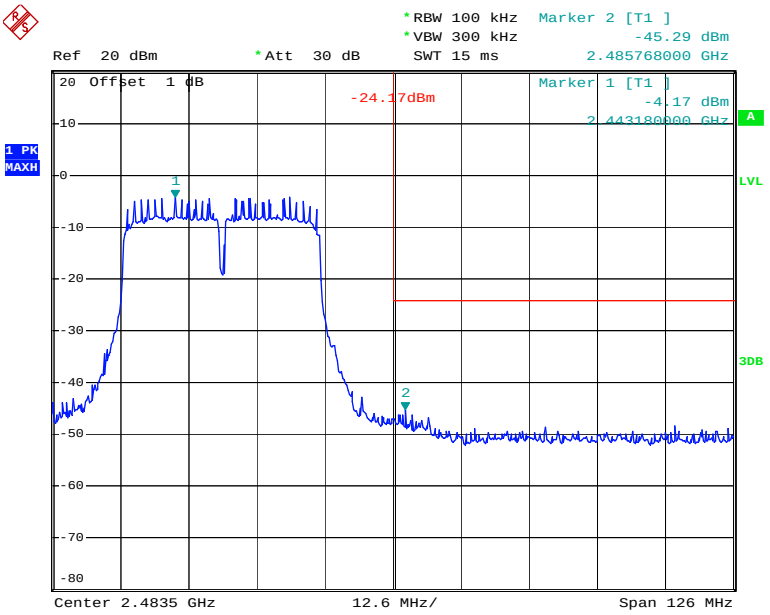
Date: 12.SEP.2017 00:32:54

802.11n ht40 Band Edge, Left Side



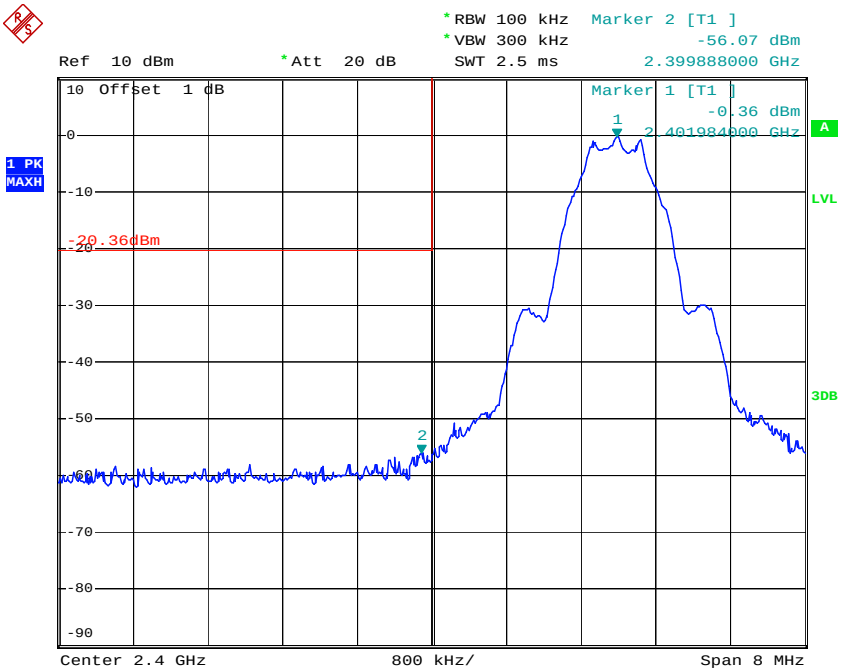
Date: 12.SEP.2017 00:42:18

802.11n ht40 Band Edge, Right Side



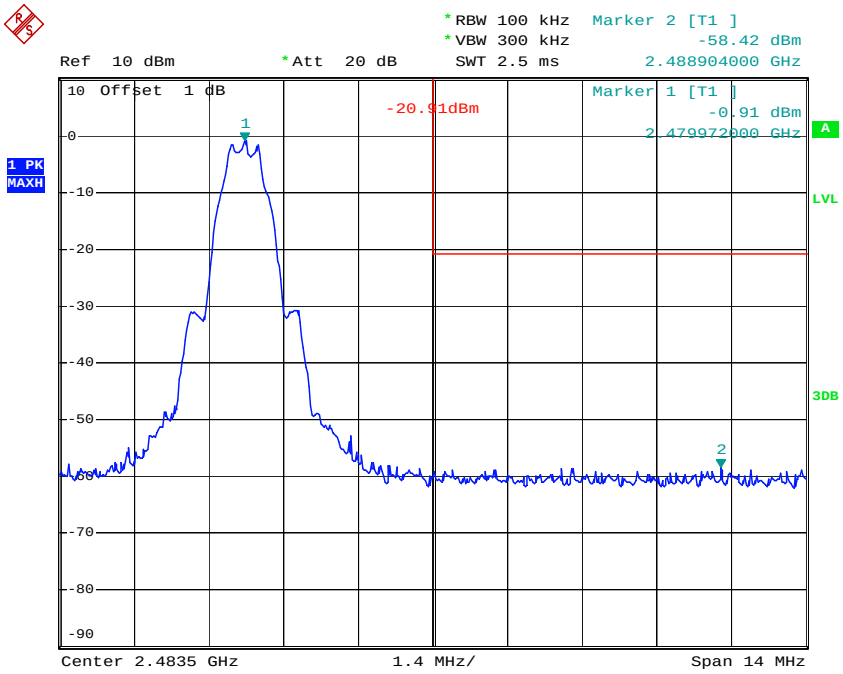
Date: 12.SEP.2017 00:39:21

BLE Band Edge， Left Side



Date: 6.SEP.2017 23:40:27

BLE Band Edge, Right Side



Date: 6.SEP.2017 23:43:02

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the RBW = 3 kHz, VBW = 10 kHz, Set the span to 1.5 times the DTS bandwidth.
4. Use the peak marker function to determine the maximum amplitude level.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2016/12/08	2017/12/08
Unknown	RF Cable	Unknown	C-4	Each Time	/

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	27.3-29.7 °C
Relative Humidity:	47-60 %
ATM Pressure:	100.2-100.4 kPa

The testing was performed by David Huang from 2017-09-05 to 2017-09-12.

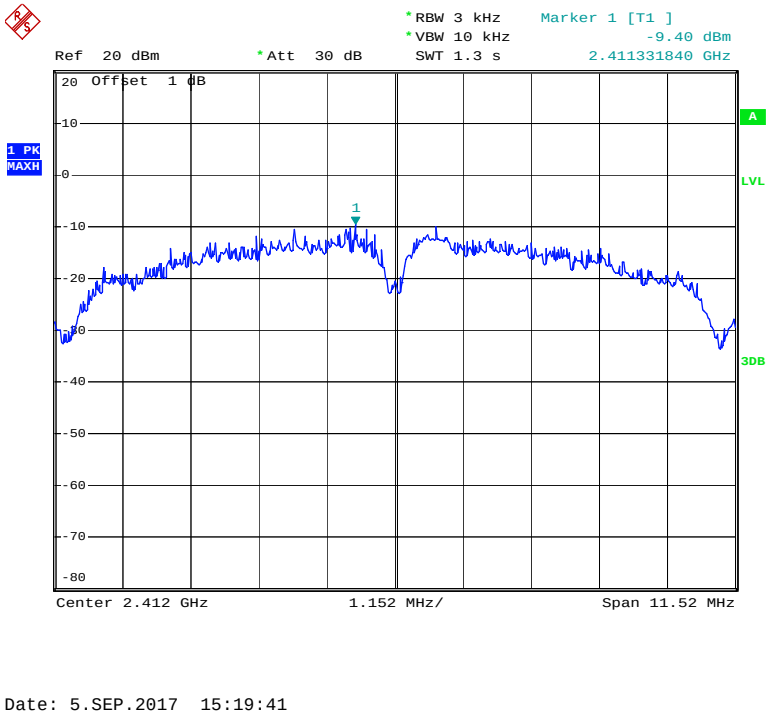
Test Result: Compliance

Test Mode: Transmitting

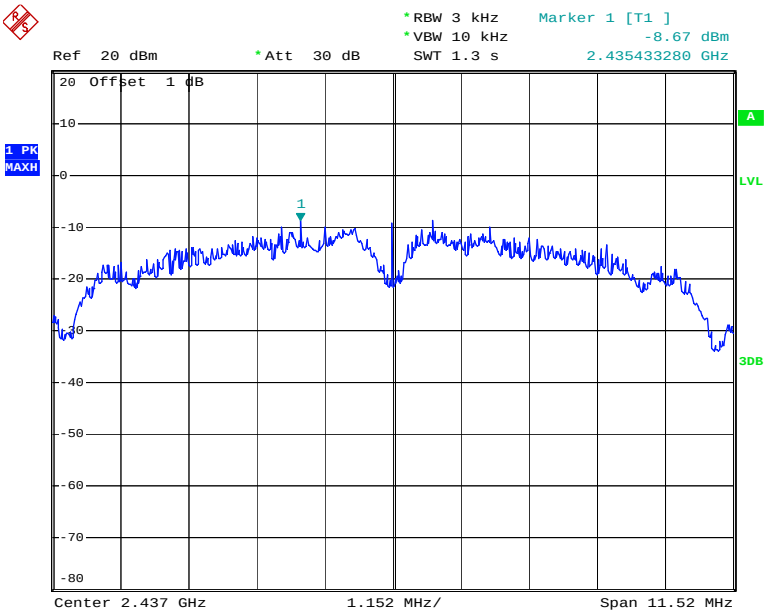
Test Result: Compliant. Please refer to the following table and plots

Test mode	Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
802.11b	Low	2412	-9.4	≤8
	Middle	2437	-8.67	≤8
	High	2462	-9.39	≤8
802.11g	Low	2412	-13.84	≤8
	Middle	2437	-12.12	≤8
	High	2462	-13.68	≤8
802.11n20	Low	2412	-15.45	≤8
	Middle	2437	-13.77	≤8
	High	2462	-16.67	≤8
802.11n40	Low	2422	-15.22	≤8
	Middle	2437	-16.25	≤8
	High	2452	-17.58	≤8
BLE	Low	2402	-16.3	≤8
	Middle	2440	-15.35	≤8
	High	2480	-17.05	≤8

Power Spectral Density, 802.11b Low Channel

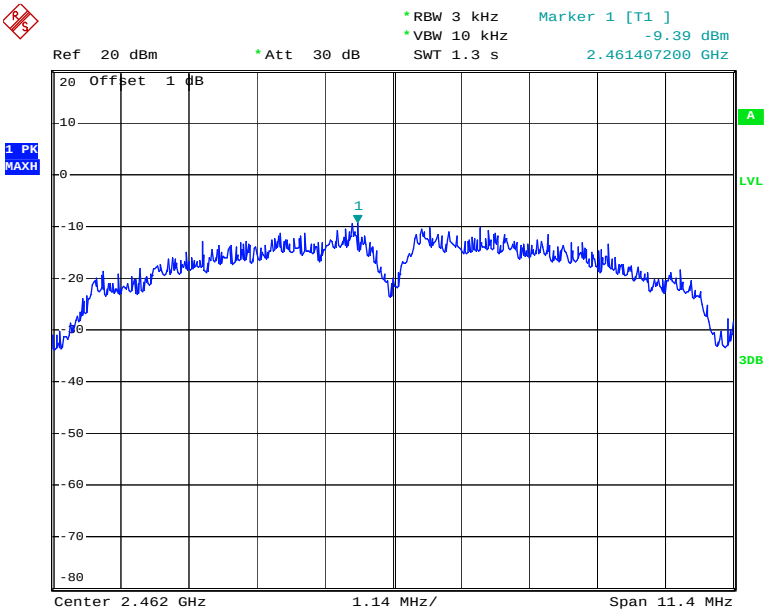


Power Spectral Density, 802.11b Middle Channel



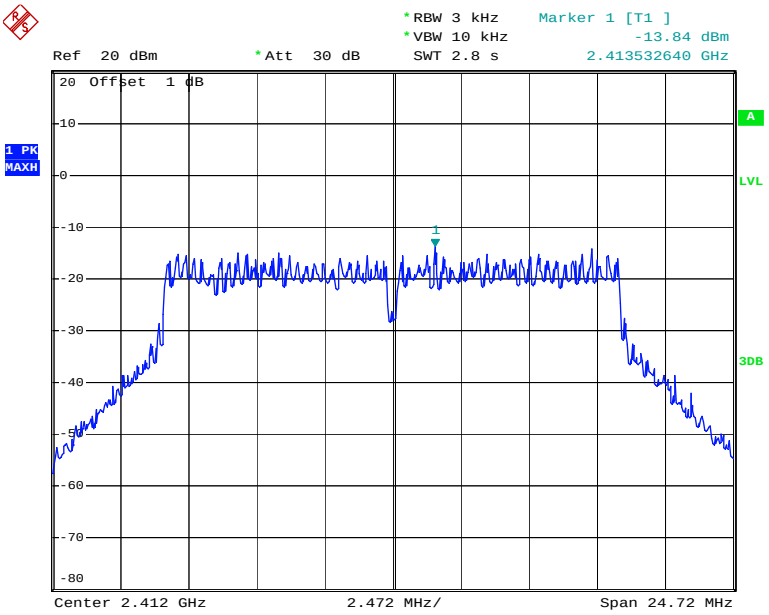
Date: 5.SEP.2017 15:23:48

Power Spectral Density, 802.11b High Channel



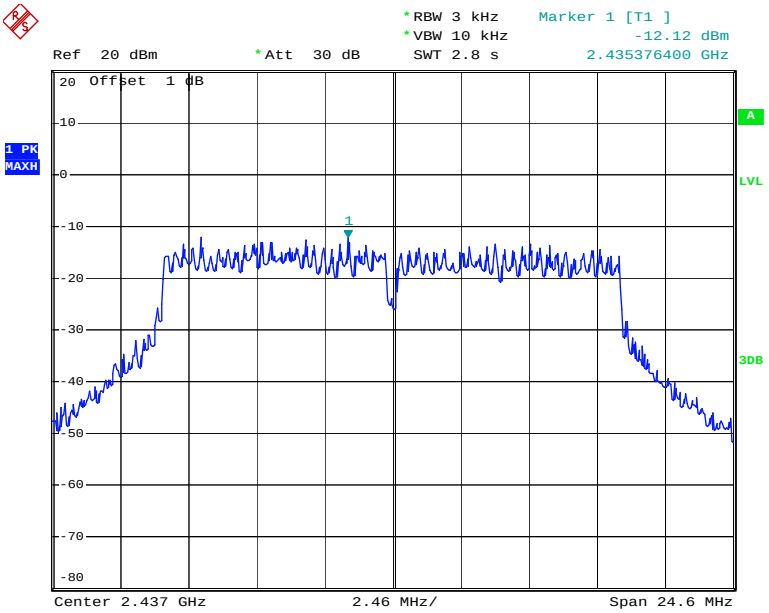
Date: 5.SEP.2017 15:25:49

Power Spectral Density, 802.11g Low Channel



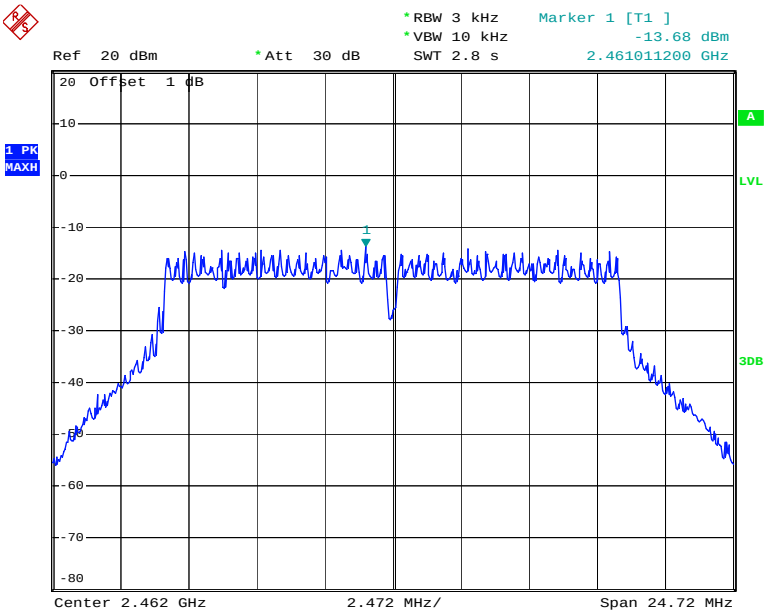
Date: 12.SEP.2017 00:19:08

Power Spectral Density, 802.11g Middle Channel



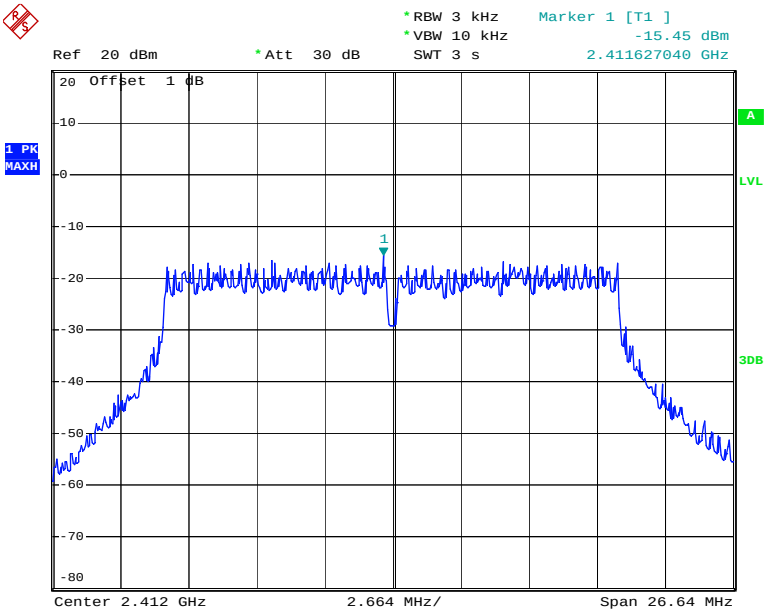
Date: 5.SEP.2017 15:29:43

Power Spectral Density, 802.11g High Channel



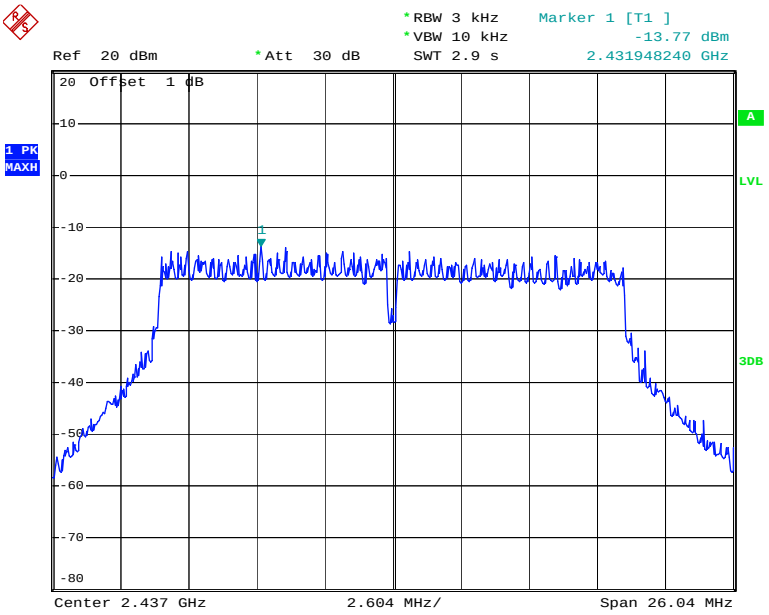
Date: 12.SEP.2017 00:26:53

Power Spectral Density, 802.11n ht20 Low Channel



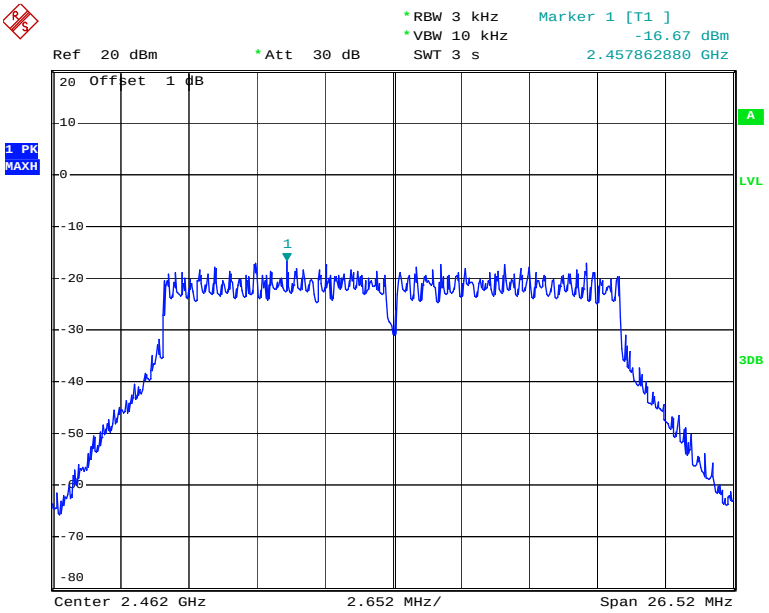
Date: 5.SEP.2017 15:34:06

Power Spectral Density, 802.11n ht20 Middle Channel



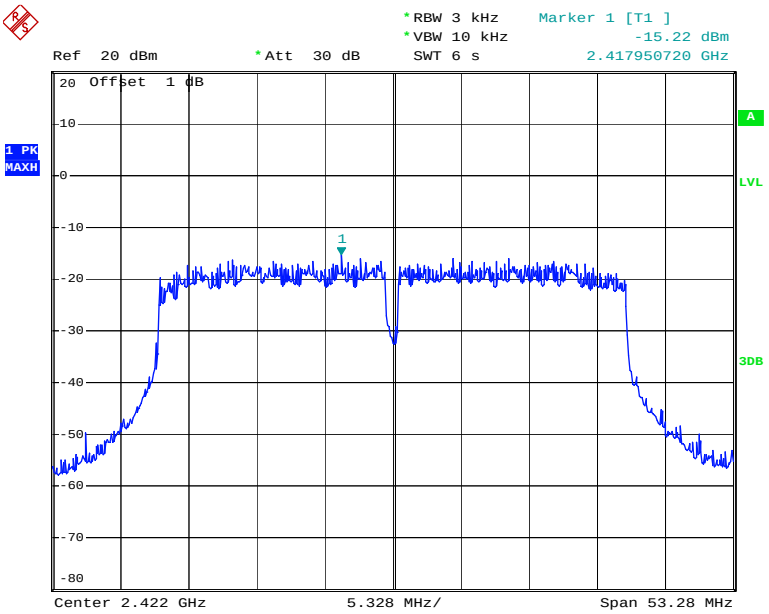
Date: 5.SEP.2017 15:36:47

Power Spectral Density, 802.11n ht20 High Channel



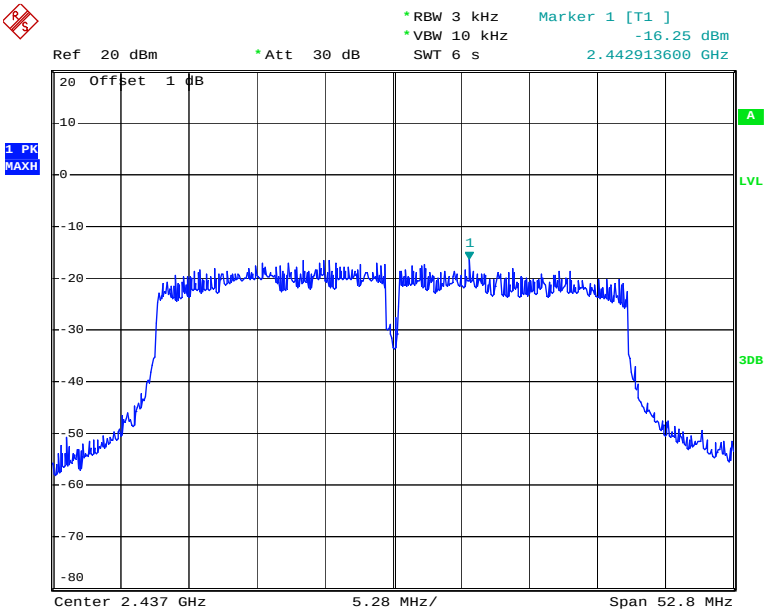
Date: 12.SEP.2017 00:32:37

Power Spectral Density, 802.11n ht40 Low Channel



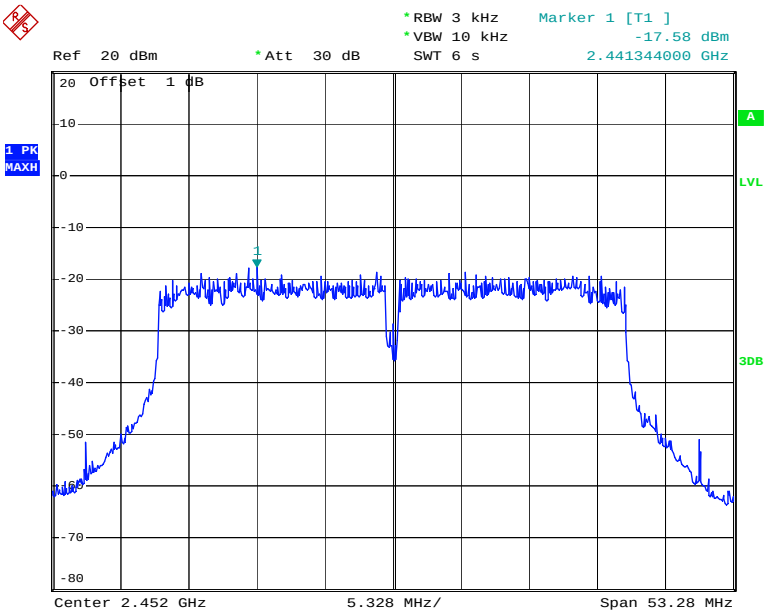
Date: 12.SEP.2017 00:42:00

Power Spectral Density, 802.11n ht40 Middle Channel



Date: 5.SEP.2017 15:43:33

Power Spectral Density, 802.11n ht40 High Channel



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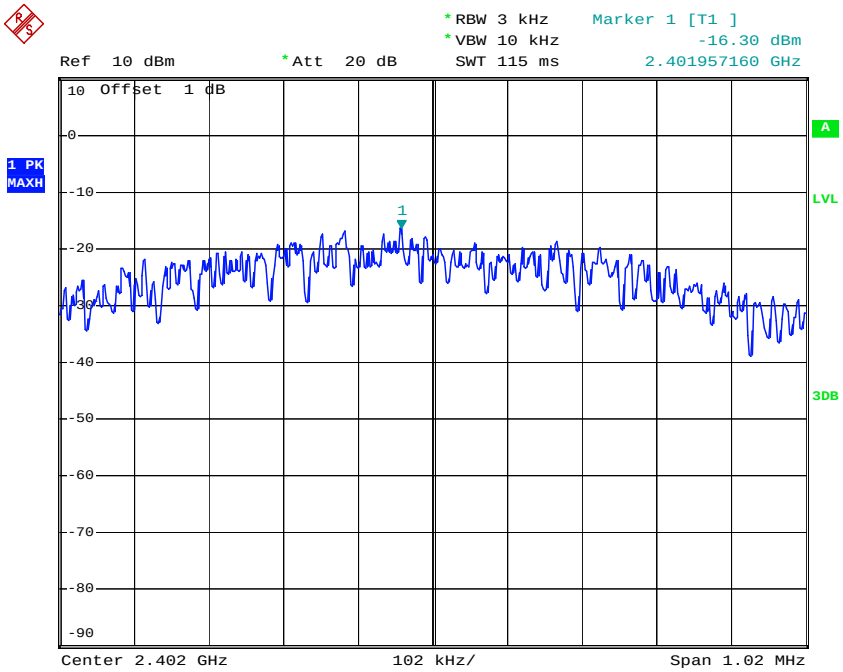
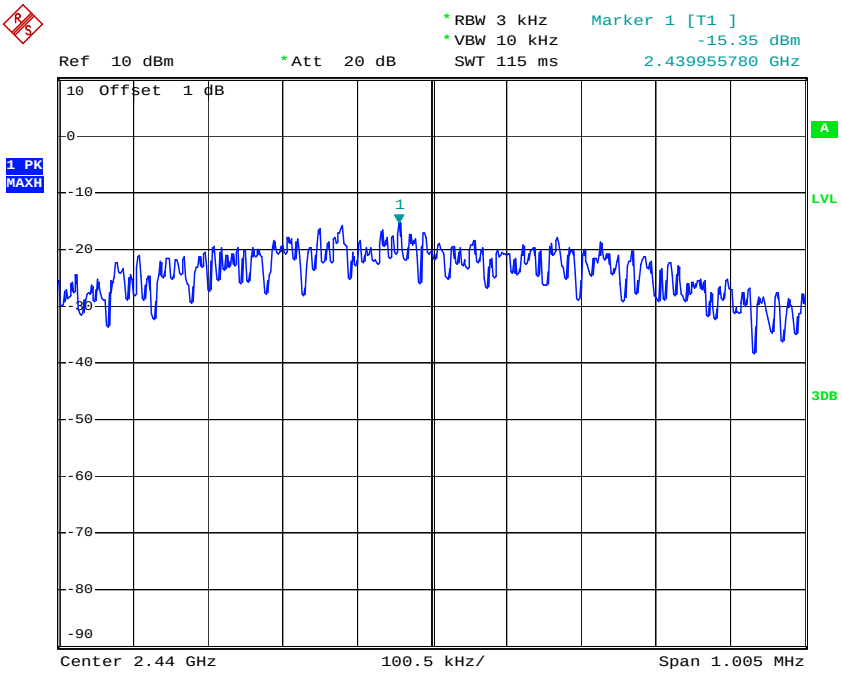
Power Spectral Density, BLE Low Channel



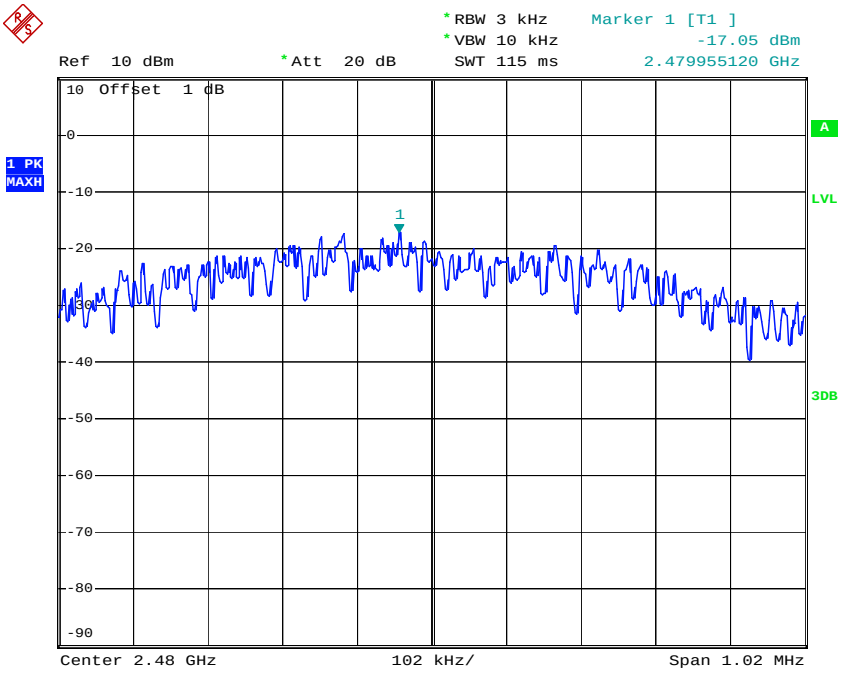
Date: 6.SEP.2017 23:40:09

Power Spectral Density, BLE Middle Channel



Date: 6.SEP.2017 23:41:37

Power Spectral Density, BLE High Channel



Date: 6.SEP.2017 23:42:44

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